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Satellite Situation Report

VOLUME 17, NUMBER 1

FEBRUARY 28, 1977

Goddard Space Flight Center Greenbelt, Maryland



GODDARD SPACE FLIGHT CENTER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	VOLUME 17 NO. 1 FEBRUARY 28, 1977	SATELLITE SITUATION REPORT	THIS REPORT IS PUBLISHED AND DISTRIBUTED BY THE OFFICE OF PUBLIC AFFAIRS, GSFC.	CENTER BRANCH AS OF 24002 ON FEBRUARY 28, 1977.	THE REPORT CONSISTS OF DATA CCMPUTED BY THE GODDARD SPACE FLIGHT CENTER, NORAD, AND THE SMITHSONIAN ASTROPHYSICAL OBSERVATORY.	TRANSMITTING FREQUENCIES ARE SHOWN ONLY FOR SATELLITES BEING MONITORED BY THE NASA SACEFLIGHT TRACKING AND DATA NETWORK.
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NATIONAL		CATALOG			FDIO	- LIVINA	ADOCEE	DEBIGEE	AMSMITT	
ESIGNATIO	ON NAME	NUMBER	SOURCE	LAUNCH	MINUTES	NAT ION	X.	×	FREG . (MHZ)	NOTES
1958 LAUNCHE	HES									
		16	ns	17 MAR	38	34.2	4 299	655		
BETA 2	VANGUARD 1	5	Sn	17 MAR	133.8	d c	3923	649		
,	MCHES		5	- 1	5					
	VANCILADO	:	91		24.	3.0E	3233	S.		
		:	SI		20.	32.0	3606	0		
LPHA 3		5807	SO		127.0	32.8	3433	4		
14 1	VANGUARD 3	50	Sn		29.0	33.3	3645	-		
IOTA 1		23	s s		66	5000	957	539		
200	PIONEER 4	1113	USSB	3 MAR	HEL TOCK	TOCENTRIC ORBIT	===			
1963 LAUNCHE	HES									
PHA	PIONEER 5	22	ns	11 MAR	2	88	H			
BETA 1		28	Sn	1 APR		48.3		672		
BETA 2	TIROS 1	53	SO	1 APR	99.0	48.3	735	688		
BETA 4		115	Sin		9.66	48.1	792	689		
AMMA 4	- 1	66	Sn		94.3	51.2	553	423		
ETA 1	GREB	t 4	s o		101.3	9.99	1038	605		C
TA 3		47	SO		101.1	9.99	1026	605		OF OF
4 4		840	SO		00100	9.99	1001	50 S		I
01A 2		99	Sn	- 1	118.0	47.2	1683	1501		G
IOTA 3		51	SO	12 AUG	118.2	FI FMFNTS	NOT MAINT	1516		N. Oj
		53	ns ns		18.4	47.2	1687	Г		A
10	COURTER 18	58	SO		107.0	28.3	1210	962		Q
	EXPLORER 8	09	SO		110.0	6.64	2044	414	~	PA
2 I X	2 30011	62	91		106.9	49.9	710	609	4	10
PI 2		64	ns		97.1	48.5	629	579	Ŋ	E
1 3		42	sn		97.5	2.84	682	200	Y	1
PI 5		5 9 2 2	Sn		105.3	47.0	1038	200	7	8
1961 LAUNCHES	HES									
- 1	VENUS PROBE	80	USSP	- 1	HEL TOC	ENTRIC ORBI	4			
DELTA 2		825	SO		118.3	2 2 2	2426	650		
		3738	SA	1	116.5	38.8	2421	626		
		3927	SO		116.5	38.8	2410	639		
-	EXPLORER 11	107	ns		107.1	28.7	1703	483		
0.2		3739	Sn		104.7	28.8	1489	475		
OM ICRON 2	INJUN-SR-3		Sn	29 JUN	103.7	66.8	1001	875		
MICRON 3			Sn		SEE NO	TE 1*	000	,,,,		*
RHO 1	TIROS 3	162	50		0000	47.0	792	726		
RHO 3		166	SO		98.3	47.9	159	598		
RHO 4		167	SO		101.9	8.10	350	769		
SIGNA I	MIDAS 3	188	Sin	- 1	161.1	0	3544	3319		
4		961	Sn		161.8	1.10	3583	3340		
A DELTA 3	MICAS 4	761	600	-	165.5	95.8	3778	3445		
			,							

DE .

INTER-						The second secon				
NATIONAL DESIGNATION NAME		CAT ALOG	SOURCE	LAUNCH	PERIOD	INCLI- NAT ION	APOGE E KM.	PERIGEE KM.	TRANSMITTING FREG. (MHZ)	NOTES
1961 LAUNCHES (CONT'D	6									
DELTA		561	Sn		166.3	8.56	3849	3436		
A DELTA 5		2 3 7 1	s o	21 OCT	165.5	95.8	4346	2875		
ETA 1 TRANSIT	48	202	Sn		105.7	32.4	1104	951		
E1 A 3		204	90	15 NOV	105.6	32.4	1006	946		
1962 LAUNCHES										
		221	ns		HEL IDC	HEL IDCENTRIC ORBIT	11			
2		222	Sn	- 1	HELI OC	ENTRIC ORBIT				The second secon
BETA 1 TIRUS 4		25.6	Sn		100.2	48.3		705		
BEIA 2		228	S	- 1	99.2	48.4	- 1	693		
		229	Sn		6.66	48.3	814	695		
_		255	Sn	- 1	1.56	32.8	- 7	2786		the state of the state of the state of
KAPPA 3		273	50		152.6	86.6	36	2777		
			0.S	_ 1	153.3	86.6	1	2795		
100		1494	Sn		152.8	86.6	(1	2785		
NO STATE OF THE OF E		282	SO		100-2	SALO UNE		502		
1A 2		311	ns		9.66	58.0		578		
A ALPHA 3		312	SO		101.4	58.2	-	009		
TO STAN		313	So	1	98.5	57.9	u	265		
LON 2		341	ns n		157.6	8.44	າທ	947		
A OMICRON 1		369	Sn		99.3	98.3		612		
NON		370	SO		10001	98.0		950		
CRON 4		388	ns		0.66	98.5		607		
RHO 1 MARINER	2	374	Sn	- 4	HEL IOC	ENTRIC ORB	<u>-:</u>			
		397	SO		98.5	58.3		681		
PSI 2		398	Sn		6. 76	58.3		657		
PSI		399	SD:		0.06	58.4		681		
		424	CANADA		105.4	80.4	7	900		
ALPHA 2		426	SO	29 SEP	105.3	40.00	1027	666		
A SHA		210	5	- 1	4.50	4.00	7	992		
CAMMA	14	4 32	SO		CURREN	T ELEMENTS	_	4		
CAMAA		ANN	SO	- 1	HEL IOC	ENTRIC ORB	E .	•		
B ETA 2		044	SO		HEL TOC	ENTRIC ORB	٠	00000		
	-	ANN	Sin	1	CURREN	T EL EMENTS	-	TAINED		
NO 1		446	SO		107.8	50.1	-	182 1075		
20 110 2		444	\$0	1	107.6	ENTRIC OPR	-	1066		
UPSILON		503	us o		185.0	47.5	-	1322		
UPSILJN 2		515	Sn		184 • 8	47.5	-	1522		
C41 1 EYPLORER	216	900	SP		104.3	52.0	_	666		
PSI 3		519	Sn		98.4	9.06	704	899		
B PSI 4		523	Sn		98.7	90.5		651		
6 184		9627	60		6.66	0		;		
1963 LAUNCHES										
1963 004A SYNCOM 1		553	Sn	14 FEB	CURRENT	T ELEMENTS	NOT MAINT	TAINED		
06.3		534	ns		7.96	100	719	485		
1963 0058		533	Sn		95.5		628	462		
				•	The second contract of the second sec					

	SPACE OBJECTS BOX SCORE	
	OBJECTS IN ORBIT	DECAYED OBJECTS
AUSTRALIA	-	-
CANADA	∞	000
FRANCE	54	25
FRANCE/FRG	. 2	Po
FRG	6	me
INDONESTA		00
INTERNATIONAL TELECOM- MUNICATIONS SATELLITE OBCANIZATION (1750)	ECOM- LITE 21	
		4
JAPAN	21	•
NETHERIANDS	4	OF
PRC	• •	9
SPAIN		0
Y S	11	4
USSR	1308	4129
TOTAL	4221	5632

Colored Court Cour											
993 LAUNCHES (CONTID) 994 LAUNCHES (CONTID) 995 COST 995	ESIGNATION	NAME	NJMBER			PERIOD MINUTES	INCLI-	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREG. (MHZ)	NOTES
1975 1975	3 L AUNCHE	S									
933 0134 TELSTAR 2 573 US 7 MAY 8255.2 42.7 934 0134 TELSTAR 2 573 US 7 MAY 8255.2 42.7 935 0224 0134 TELSTAR 2 574 US 7 MAY 8255.2 42.7 935 0224 0134 TELSTAR 2 574 US 7 MAY 8255.2 42.7 935 0224 0134 TELSTAR 2 560 US 16 JUN 99.2 199.2 935 0225 TELSTAR 2 500 US 16 JUN 99.2 199.2 935 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 935 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 935 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 937 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 938 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 938 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 930 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 939 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 930 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 930 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 930 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 930 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 930 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 930 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 930 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 930 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 930 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 930 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 930 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 930 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 930 0225 TELSTAR 2 560 US 16 JUN 99.2 199.2 930 022	00		536	USSR		Ü	=	\$20	432		
25 1349 25 134	0134	STAR	573	Sn				-	396		
140 140	00		575	Sn			42.7	10794	959		
935 0145	9		679	SIT		-	87.4	4030	3248		
993 0040	014C		809	Sn			87.3	3713	3577		
953 0252	0140	014DE	****	SO		ž	E 2*				5
993 0220 994 0244 TIROS 7 1600 05 19 JUN 100.6 6 05 11 9 JUN 100.6 6 05 JUN 100.6 6 05 JUN 100.6 6 JUN 100.6 5 JUN 100	0		4604	50		1.66	0.00	740	907		
953 0244 TIROS 7 605 US 19 JUN 94.7 554.1 955.1 953.2 953.2 953.2 954.2 955.2 954.2 955.2	0		610	50		100.66	000	946	727		
963 C249 963 C249 963 C249 964 C24 965 C240 965 C24	024A	S	604	0S		97.0	58.5	631	605		
963 0259 963 0259 964 025 965 0259 965 025	0248		605	SO		7.46	58.1	508	501		
953 0239 RESEARCH SATELLITE 667 US 19 JUN 1973 19 SP. 953 0239 RESEARCH SATELLITE 612 US 19 JUN 1973 19 SP. 953 0230 RESEARCH SATELLITE 612 US 18 JUL 1674 RESEARCH SATELLITE 613 US 18 JUL 1674 RESEARCH SATELLITE 613 US 19 JUL 1674 RESEARCH SATELLITE 613 US 19 JUL 1674 RESEARCH SATELLITE CURRENT RESEARCH SATELLITE RESEARCH SATELLIT	9		909	SM		97.2	58.3	638	615		
955 9254 RESERRCH SATELLITE 612 US 25 JUN 127.8 88.4 96.5 95.5 93.0 95.5 95.5 95.5 95.5 95.5 95.5 95.5 95	00		209	Sn		95.3	58.0	557	512		
0300 A PER GEOPHYSICS - 02 19 JUL 167.8 98.4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4460	SEADCH SAT		5		15/00	- 1	3004	330		
0300A 0300A 0300A 0300A 0300B 0300C	200	FOR GEOPHY		60		6666		1001	604		
030B 030B 030C 031C 031C 031C 031C 031C 031C 031C				SO		167.8	88.4	3724	3680		
1970 1970			635	ns		167.8	88.4	3724	3679		
SANDER S			630	SO		167.4	88.4	3787	3588		
STATE STAT			200	80		168.2	88.4	3770	3668		
STANCON 2 635 US 26 JUL 17.2 17.			3121	200		100.00	B C C C C	3 744	3563		
0.386 SN 39 659 US 28 SEP 107.0 89.8 SEP 107.0	4150		A 28	21	- 1	THEORIT	N JM J IJ	100	TATABLE OF		
0.384 0.385 0.386 0.386 0.386 0.387 0.387 0.388	0318		625	ns o		172.2	32.6	7467	280		
0.388 SN 39 677 US 28 SEP 107.3 89.8 0.386 CA2 US 28 SEP 107.0 89.8 0.386 745 US 28 SEP 107.0 89.8 0.386 7259 US 28 SEP 107.0 89.8 0.394 674 US 28 SEP 107.0 89.8 0.394 675 US 28 SEP 107.0 89.8 0.394 675 US 28 SEP 107.0 89.8 0.436 675 US 17 0CT CURRENT ELEMENT 0.476 CA7 US 27 NOV SEE NOT 0.477 CA7 US 27 NOV SEE NOT 0.490 CA7 US 27 NOV SEE NOT 0.490 CA7 US 27 NOV SEE NOT 0.490 CA7 US 27 DEC 105.7 89.8 0.490 CA9 CA9			699	Sn		107.0	89.8	1111	1073		
038C SN 39 671 US 28 SEP 107.2 89.8 038C SN 39 671 US 28 SEP 107.0 89.8 038F 208 SEP 107.0 89.8 89.8 89.8 038H 58 SEP 107.0 89.8 89.8 89.8 039H 675 US 17 OCT CURRENT ELEMENT 69.8 89.8 039H 675 US 17 OCT CURRENT ELEMENT 69.8 89.8 99.8 99.8 039H 675 US 17 OCT CURRENT ELEMENT 69.8 99.8	0388	1	670	ns		107.3	80.8	1136	1070		
0336	0380	(4)	671	SO		107.2	89.6	1134	1071		
0336 0336 0336 0337 0338 0338 0338 0347 037 037 037 037 037 037 037 03			745	311		0.90	9 0 0		2000		
0.3364 0.3364 0.3364 0.3364 0.3364 0.3364 0.3376 0.			2097	SO		107.0	89.8	1123	1060		
03384 675 US 17 OCT CURRENT ELEMEN 0398			3166	Sn.		107.3	89.8	1136	1070		
039B 675 US 17 OCT CURRENT ELEMENT 039B 043A CENTAUR 2 694 US 17 OCT CURRENT ELEMENT 043A CENTAUR 2 694 US 17 OCT CURRENT ELEMENT 0447B CENTAUR 2 694 US 17 OCT CURRENT ELEMENT 0447B TOS US 27 NOV 106.9 30.3 049C US 27 NOV 106.9 30.3 049D TOS US 27 NOV 106.9 30.3 049D TOS US 5 DEC 107.0 89.8 89.8 049D TOS US 5 DEC 106.7 89.8 89.8 049D TOS US 5 DEC </td <td></td> <td></td> <td>628</td> <td>50</td> <td></td> <td>106.8</td> <td>89.88</td> <td>1113</td> <td>1049</td> <td></td> <td></td>			628	50		106.8	89.88	1113	1049		
0330 C 0330 C<			675	ns		CURRENT	FIFNEN	NOT AM	TATNED		
0478 CENTAUR 2 694 USSR 1 NOV 1 06.9 0478 - 047P 770 US 27 NOV SEE NOT 1 04.9 049B 770 US 27 NOV SEE NOT 04.9 049B 770 US 5 DEC 107.0 049B 770 US 5 DEC 107.0 049C 775 US 5 DEC 107.0 049C 775 US 5 DEC 103.5 049C 775 US 19 DEC 114.4 053B 776 US 19 DEC 114.4	0330		692	SO		CURRENT	ELEMENTS	NOT	TAINED		
0478 - 047P	043A		683	USSB		98.6	58.8	7	327		
0496 0496 0496 0496 0496 0496 0496 0497 0496 0497 0496 0497 0497 0497 0497 0498 0498 0498 0499 0499 0499 0499 0499	04/40 1	5	450	SO		00.00 SEE	30.3	1698	472		*
0490 0490 0490 0490 0490 0490 0490 0490	4040		201	3	- 6		80.0	1002	1044		1
049C 107.0 049D 17.0 049D			704	ns ns		107.0	89.8	1119	1067		
049D 049D 049F 049F 049G 049G 049H 049H 049H 049H 049H 049H 049H 049H	- 1		7.05	Sn	- 1	107.0	89.8	1116	1067		
0496 0496 0496 0496 0496 0497 0497 0498 0499 0499 0499 0499 0499 0499 0499			932	SO		15.5	89.8	1109	1062		
0494 0494 0494 0494 0494 0494 0495 0494 0498 0498 0498 0498 0498 0498 0498	- 1		753	50		1000	0.00	1104	1053		
0494 0494 0494 0495 0497 0497 0498 0498 0498 0498 0534 0534 0535 0535 0536 0537 0537 0538 0538 0538 0538 0538 0538 0538 0538			2432	Sn		107.0	89.8	1118	1067		
0494 0494 0494 0494 0494 0494 0534 0534 0535 0536 0537			2620	SO		106.6	80.8	1088	1060		
0494 EXPLORER 19 6283 US 5 DEC 103.5 C538			2930	s v		500	89.08	1031	781		
049H EXPLORER 19 6283 US 5 DEC 103.5 0534 EXPLORER 19 714 US 19 DEC 110.6 0535 723 US 19 DEC 114.6 0535 723 US 19 DEC 114.4 0537 724 US 19 DEC 114.4 0534 772 US 19 DEC 114.4 0534 772 US 19 DEC 114.4 0534 770 US 19 DEC 114.4			6182	SO		103.5	89.7	1080	179		
0534 EXPLORER 19 714 US 19 DEC 110.6 0536 0530 722 US 19 DEC 114.4 0537 723 US 19 DEC 114.4 0538 726 US 19 DEC 114.4 0531 726 US 19 DEC 114.4 0531 727 US 19 DEC 114.4 0533 726 US 19 DEC 114.4 0534 TIRDS 8 716 US 21 DEC 99.2	W6 90		6283	ns	1	103.5	89.7	1075	782		
0530 0530 0530 0530 0531 0531 0531 0531	053A	XPLORER 1	714	Sn		110.6	78.8	1673	846		
0530 723 05 19 DEC 114.4 0534 724 05 19 DEC 114.4 0534 725 05 19 DEC 114.4 0534 71805 8 750 05 21 DEC 99.2			722	511		114.6	78.7	2163	715		
0536 19 DEC 114.4 0536 19 DEC 114.4 0534 1752 US 19 DEC 113.8 13.8 0534 1752 US 19 DEC 114.4 053.3 1750 US 19 DEC 114.1 0548 1750 US 21 DEC 99.2 0548 770 US 21 DEC 100.8			723	ns ns		114.4	78.7	2144	718		
0536 13.8 19 DEC 113.8 10534 13.8 13.8 10534 13.8 10534 14.4 14.4 14.4 10534 17.0 0.5 21 DEC 99.2 10548 17.0 0.5 21 DEC 99.2 105.8 1	-1		724	SA	- 11	114.4	78.7	2178	689		
0534 TIRDS 8 732 US 19 DEC 114.1 0544 TIRDS 8 716 US 21 DEC 99.2 717 US 21 DEC 99.2 727 US 21 DEC 98.7			726	SO.		113.8	78.6	2141	999		
0544 TIRDS 8 750 US 21 DEC 194-1 0548 TIRDS 8 717 US 21 DEC 99-2 717 US 21 DEC 99-7	-		732	SO	- 1	114.4	78.7	2167	269		
054B 21 DEC 98-7	000	IROS	716	SO		99.5	58.4	742	1899		
054C 11S 21 DEC 100-8	0548		717	SIL	- 1	98.7	58.4	720	679		
			720	ns		100.8	58.4	910	169		
0540 US 21 DEC 96•7			7.36	Sn		2.96	58.5	652	250		
					- 3-						

LAUNCHES LAUNCH	LAUNCHES LAUNCH	TER-													
Control Cont	Control Cont	NATIONAL DESIGNAT	LION	NAME	A	ALOG MBER	SOURCE	LAU	NCH	MINUTES	NAT TON	APOGEE KM.	KM.	FREG . (MHZ)	NOTES
Color Colo	Color Colo	٦													
Control Cont	SCALE CRASTITY CRADITENT 728 US	0			-	727	Sn		ZAS	103.4	6.69		912		
SCHOOL S	Colored Colo	64 00		VIIV	-	728	Sn		NAC	103.3	6.69	1	1 .		
Colored Colo	Colored Colo	64 00		AR RAD.	- 1 -	730	SO		ZAZ	103.4	6.69		912		
Colored Colo	Second	000	-	-		731	93	- 1	4	103.4	6.69	1	110		
Colored Colo	Colored Colo	64 00	2A		1-1	733	Sn		ZA	101	0.00		789		
Colore	Colored Colo	64 00	28			734	5	- 1	ZAZ	10101	0.00				
194 194	Colored Colo	900	α.	A	-,-	737	s S		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	194.7	46.3	-	2032		
Court Cour	Court Cour	64			,-	7.38	SO		ZAN	194.7	46.3	-	2030		
Colored Colo	Colore C	64 004	48			741	SO.		ZAN	108.8	91.4	٦.	1046	,	
Color Colo	CORREST FIER TRON TAGE USSR 30 JAN 1356-3 66.03 66.03 CORD CORD TAGE USSR 30 JAN 1366-3 66.03 66.03 CORD TAGE USSR 30 JAN 1366-3 66.03 67445 CORD TAGE USSR 30 JAN 1366-3 67.03 67445 CORD TAGE USSR 30 JAN 1366-3 67.03 67445 CORD TAGE USSR A JUN 102.0 90.6 94.0 CORD USSR LUS A JUN 102.0 90.6 94.0 CORD USSR LUS LUS 90.6 94.0 94.0 CORD USSR LUS LUS 10 JUL 110.0 90.6 94.0 CORD USSR LUS LUS 10 JUL 110.0 90.6 94.0 CORD USSR LUS LUS LUS LUS 90.6 94.0	900	00			747	SO	- 1	ZAN	108.7	81.8		1030		
Color Colo	Color Colo	64 000		KTRON		746	USSR		NAC	167.4	8.09	•	399		
Color Colo	Color Colo	54 006		KTRON	-	748	USSR		ZAC	1356.3	64.0	9	2382		
Color Colo	Color Colo	200 49	200		-	750	USSR	1	747	150.4	60.8	7	2000		
C266 C266 <th< td=""><td> Color Colo</td><td>200</td><td></td><td>- CNC</td><td>,-</td><td>785</td><td>USSR</td><td></td><td>APR</td><td>HEL IOCE</td><td>NTRIC ORBI</td><td>5</td><td></td><td></td><td></td></th<>	Color Colo	200		- CNC	,-	785	USSR		APR	HEL IOCE	NTRIC ORBI	5			
Colored Colo	Colored Colo	64 026				108	Sn		NOS	102.8	90.5		853		
Color Colo	Color Colo	54 626	80			805	SO		22	103.4	900		772		
Colore C	Colore C	64 026	09			608	ns		NON	102.9	90.5		855		
Colored Barrow Colo	0318	54 62	96 6		21	986	Sn		Z,	102.9	90.5		855		
Column C	Colored Colo	54 03	A			812	S		2	5.101	8.66		828		
Columb C	Colored Colo	50 00	100			815	000		Z Z Z	101	8.66		819		
Colored Base Colo	Colore Color Col	54 03	1	KTRON		829	USSR	1	JUL	166.1	8.09	•	395		
0.45B CONTRACT CONTRACT 69-66 64-306 0.45B 0.45B 0.5 17 JUL CURRENT ELEMENTS NOT MAINT 0.45B 0.45B 0.5 17 JUL CURRENT ELEMENTS NOT MAINT 0.45B 0.45B 0.5 17 JUL CURRENT ELEMENTS NOT MAINT 0.45B 0.45B 0.5 14 AUG CURRENT ELEMENTS NOT MAINT 0.45B 0.45B 0.5 19 AUG CURRENT ELEMENTS NOT MAINT 0.45B 0.45B 0.5 19 AUG CURRENT ELEMENTS NOT MAINT 0.45B 0.45B 0.5 10 AUG CURRENT ELEMENTS NOT MAINT 0.45B 0.5 0.5 0.5 0.5 0.5 0.45B 0.5 0.5 0.5 0.5 0.5 0.5 0.51A 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.51A 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5<	043B 64306 64306 043B 043B 05 17 JUL CUBRENT ELEMENTS NOT MAINT 0440A 643C US 17 JUL CUBRENT ELEMENTS NOT MAINT 045B 045B US 17 JUL CUBRENT ELEMENTS NOT MAINT 045B 045B US 17 JUL CUBRENT ELEMENTS NOT MAINT 045B 045B US 19 AUG CUBRENT ELEMENTS NOT MAINT 047B US 19 AUG CUBRENT ELEMENTS NOT MAINT 047B US 19 AUG CUBRENT ELEMENTS NOT MAINT 047B USSR 22 AUG 714.7 70.9 38085 045A USSR 25 AUG 103.6 70.9 38085 055A CSMOS AA 877 USSR 28 AUG 70.9 38085 055A CSMOS AA 877 USSR 28 AUG 70.9 100.7 055B CSMOS AA 877 USSR 28 AUG 70.9 100.7 055B CSMOS AA 877 USSR </td <td>54 036</td> <td></td> <td>KTFON</td> <td></td> <td>830</td> <td>USSR</td> <td></td> <td>71</td> <td>1313.4</td> <td>69.8</td> <td>9</td> <td>2813</td> <td></td> <td></td>	54 036		KTFON		830	USSR		71	1313.4	69.8	9	2813		
CURRENT ELEMENTS NOT MAINT	17 10 10 10 10 10 10 10	20 03	200			832	USSB	1	15	1319.0	69.69	64306			
SANCOM S	0402B 638 but US 17 JUL CURRENT ELEMENTS NOT MAINT 041B 641B US 17 JUL CURRENT ELEMENTS NOT MAINT 041B 651 US 19 AUG CURRENT ELEMENTS NOT MAINT 047B 651 US 19 AUG CURRENT ELEMENTS NOT MAINT 047B 10 AUG CURRENT ELEMENTS NOT MAINT 049D COSMOS 41 869 USSR 22 AUG 714.7 70.9 38085 049D COSMOS 41 869 USSR 22 AUG 714.7 70.9 38085 051B COSMOS 44 876 USSR 22 AUG 70.8 38085 051B COSMOS 44 877 USSR 28 AUG 70.9 38085 051B COSMOS 44 877 USSR 28 AUG 70.8 100.7 053B COSMOS 44 877 USSR 28 AUG 70.8 100.7 053B COSMOS 44 877 USSR 28 AUG 70.8 100.7 053B COSMOS 44 877 USSR 28 AUG 70.8 100.7	54 04	A C			836	Sn		305	CURRENT	ELEMENTS	OT MAI	4		
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0.064B 0.074 US 10 OCT 104.6 79.6 1074 0.64D 977 US 10 OCT 103.4 79.5 1050 0.74A EXPLORER 23 924 US 10 OCT 103.4 80.0 1116 0.74A EXPLORER 23 924 US 21 NOV 115.7 81.3 246.2 0.76G EXPLORER 25 93.2 US 21 NOV 115.7 81.3 246.2 0.76G EXPLORER 25 93.2 US 21 NOV 115.7 81.3 246.2 0.76G EXPLORER 25 93.2 US 21 NOV 115.7 81.3 204.6 0.76G 93.4 US 21 NOV 111.2 81.3 204.6 0.76G 93.5 US 21 NOV 111.2 81.3 204.6 0.76G 94.1 US 21 NOV 112.0 81.3 2130 0.76G 94.0 US 21 NOV 112.0 81.3	304 B 907 US 10 OCT 104.6 79.6 1074 064D 064D 977 US 10 OCT 103.8 79.5 1074 073A MARINER 3 977 US 10 OCT 105.3 80.0 1116 075B MARINER 23 924 US 10 OCT 105.3 80.0 1116 075B FXPLORER 23 924 US 21 NOV 97.6 81.3 2462 076C 934 US 21 NOV 1115.7 81.3 2462 076C 934 US 21 NOV 111.1 81.3 2038 076C 935 US 21 NOV 111.1 81.3 2046 076E 941 US 21 NOV 112.0 81.3 2130 076J US 21 NOV 112.0 81.3 2130 076J US 21 NOV 112.0 81.3 2097 076J US 21 NOV	90 49	H	8	-	668	ns	1	OCT	104.6	9.62	_	886		
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073A MARINER 3 923 US 5 NOV HELIOCENTRIC ORBIT 074A EXPLORER 23 924 US 51.9 84.2 076B EXPLORER 25 932 US 21 NOV 115.7 81.3 2446 076C 076E 934 US 21 NOV 111.1 81.3 2046 076E 935 US 21 NOV 111.2 81.3 2046 076E 935 US 21 NOV 111.2 81.3 2046 076E 941 US 21 NOV 112.1 81.3 2036 076J US 21 NOV 112.0 81.3 2037 076G US 21 NOV 112.0 81.3 21939	073A MARINER 3 923 US 5 NOV HELIOCENTRIC ORBIT 842 074A EXPLORER 23 924 US 5 NOV 97.6 51.9 84.2 076B EXPLORER 25 932 US 21 NOV 115.7 81.3 2446 076C 934 US 21 NOV 111.1 81.3 2038 076E 935 US 21 NOV 111.2 81.3 2036 076J 941 US 21 NOV 112.1 81.3 2130 076J 940 US 21 NOV 112.1 81.3 2097 076J US 21 NOV 112.0 81.3 2097 076J US 21 NOV 112.0 81.3 2097 076N US 21 NOV 106.9 81.3 2097	90				077	Sil	1	100	105.3	80.0	1-	907		
0744 EXPLORER 23 924 US 6 NOV 97.6 51.9 84.2 2462 0766 5760 934 US 21 NOV 115.7 81.3 2462 2465 0765 934 US 21 NOV 111.1 81.3 2046 0765 935 US 21 NOV 111.2 81.3 2046 0765 935 US 21 NOV 111.2 81.3 2046 0765 941 US 21 NOV 112.1 81.3 2096 0765 941 US 21 NOV 112.1 81.3 2097 0765 940 US 21 NOV 112.0 81.3 2097 0765 940 US 21 NOV 109.0 81.3 1936	074A EXPLORER 23 924 US 5 NOV 115.8 81.3 2462 076G EXPLORER 25 932 US 21 NOV 115.7 81.3 2462 076G 934 US 21 NOV 111.1 81.3 2038 076E 935 US 21 NOV 111.1 81.3 2046 076J 941 US 21 NOV 112.1 81.3 2097 076J 941 US 21 NOV 112.1 81.3 2097 076J 940 US 21 NOV 112.0 81.3 2097				·	923	SO		NON	HEL IOCE	NTRIC ORBI				
0766 EXPLORER 25 932 US 21 NUV 115.7 81.3 2446 0760 934 US 21 NUV 116.7 81.3 2446 0760 934 US 21 NUV 111.1 81.3 2046 0760 935 US 21 NUV 112.1 81.3 2046 0760 941 US 21 NUV 112.1 81.3 2130 0760 US 21 NUV 112.0 81.3 2097 076N 940 US 21 NUV 112.0 81.3 2097	0766 EXPLORER 25 932 US 21 NUV 115.7 81.3 2446 0760 934 US 21 NUV 115.7 81.3 2446 0765 935 US 21 NUV 116.1 81.3 2046 0765 935 US 21 NUV 116.2 81.3 2046 0763 941 US 21 NUV 112.1 81.3 2130 0763 941 US 21 NUV 112.0 81.3 2097 0764 US 21 NUV 112.0 81.3 2097					924	SA:		NO.	97.6	6.15	1	000		
0760 0765 0765 0765 0765 0765 0765 0765	0760 0760 0765 0765 0765 0765 0765 0765					932	SO		>02	115.8	81.5		535		
076E 935 US 21 NOV 111.2 81.3 2046 0765 937 US 21 NOV 112.1 81.3 2130 0765 940 US 21 NOV 112.1 81.3 2130 076K 940 US 21 NOV 112.0 81.3 2097	076E 935 US 21 NOV 111.2 81.3 2046 076J 941 US 21 NOV 112.1 81.3 2130 076J 940 US 21 NOV 112.0 81.3 2197 076K 940 US 21 NOV 112.0 81.3 2097		200			200	110		202		81.3	1	525		
0756 937 US 21 NDV 112-1 91-3 2130 0756 940 US 21 NDV 112-0 81-3 2097 0756 940 US 21 NDV 112-0 81-3 1938	0756 937 US 21 NOV 112-1 81-3 2130 0755 940 US 21 NOV 112-0 81-3 2097 0756 US 21 NOV 112-0 81-3 2097 0756 US 21 NOV 108-9 81-3 1838		900			935	SO		NON	111.2	81.3		527		
4 076J 941 US 21 NUV 112:0 81:3 2097 US 076K 940 US 21 NUV 112:0 81:3 1938	4 076J 941 US 21 NUV 112.0 81.3 2097 4 076K 940 US 21 NUV 108.9 81.3 1838		99			937	SII	- 1	A	109.4	8163	-	203		
4 C/ON 940 US 21 NOV 108.9 81.3 1838	4 C/ON 4 C/ON 108-9 81-3 1838		65			146	S		200	112.1		2002	550		
		*	200			940	500		NON	108.9	6	1838	517		

200										
NATIONAL DESIGNATION	ZAME	CAT ALOG	SOURCE	LAUNCH	PERIOD	INCLI-	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREG . (MHZ)	NOTES
1964 LAUNCHE	HES (CONT'D)									
	7	938	SO	28 NOV 28 NOV	20	ENTRIC ORB	L L:			
- 1	ZOND Z	945	USSR		ĕ	ENTRIC ORB	-	1023		
		926	SO			7.00	1079	1021		
		965	SO			89.7	1087	1024		
- 1		960	2	- 1		200	1000	1023		-
		1 099	SO			89.7	1082	1023		
- 1		1 528	SO	-	1	200	1071	1001		
		2798	os n			4.68	871	199		
		5444	Sn	-		89.7	872	798		
1964 086A 1964 086A	EXPLORER 26	963	s s s	21 DEC 21 DEC	CURRENT 154.9	T ELEMENTS	NOT MAINT	TAINED 166		
-	HES									
		973	Sn		94.7	98.6	594	417		
		979	ns		119.1	96.4	2585	705		
965		1312	Sn		117.9	96.3	2503	674		
	usu 2	987	SO		95.9	32.8	592	528		
965		988	SO		92.0	32.8	378	366		
		1001	Sn		145.3	32.1	2796	2759		
		1000	SO		145.7	32.1	2806	2778		
	PEGASUS 1	1085	sn		93.6	31.7	490	414		
		1088	2 2		PARACE	2	600	485		
965 014A	COSMUS 58	1097	USSR	26 FEB			625	545		
	GRER	1271	USSK		103.4	10.0	938	905		
	GRAVITY GRADIENT 2	-	So		103.4	10.01	938	906		
965 0160	CHADIEN	1-	Sn		103.4	70.07	939	906		
	EGRS 3	1 208	Sn		103.4	10.0	937	906		
	OSCAR 3	1293	So		103.3	0.00	933	901		
	DODECAHEDRON	1272	ns n		103.4	10.0	940	906		
965 0163		1245	SO		103.4		937	406		•
	- 020FE	1273	115			- 1	202	513		
		1 289	Sn		95.3	0.06	591	479		
		1 463	2		45. TOC	U.	11	004		
965 027A		1314	SO		11.5	90.2	1321	1272		
	EGRS 4	1315	Sn		111.4	90.2	1319	1268		
		1389	c c c		1111.2	90.5	1308	1259		
965 027E	- 1	1 300	SII		101.0	90.0	868	749		
965 028A	EARLY BIRD	1317	1150		u	NT FI FMFNTS	MAT	35798 NTAINFD		
965 030A	MOLNIYA	1324	USSR		20.3	64.8	274		AND THE RESERVE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.	-
965 0300		1961	USSR		702.5	64.9	38605	966	;	1
965 032A	EXPLORER 27	1 328	SO		107.7	41.1	1320	927	136.740	* 6
965 0325		1 995	c c		106.3	41.1	1359	753		
965 0320		2011	SIL		108.8	41.1	1286	1060		
965 034A		1359	s o	6 MAY	309.8	32.1	14792	2783		

ON POUR QUALITY

100 100	NATION NAME									
LANNORES (CONT.D) LANNORES (CONT.D) LANNORES (CONT.D) LANNORES (CONT.D) LANNORES (CONT.D) LANNORES (CONT.D) LANDORES (CON	LAUNCHES (CONT. 0346 0346 0346 0346 03486 0344 03486 03444 04484 04484 04484 04486 04444 04486	CAT ALOG	SOURCE	AUNC	PERIOD	INCLI-	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREG . (MHZ)	NOTES
1970 1970	0334C 0338A 0338A 0338B 0338B 0444A 0448A 0448A 0448A 0448A 0448B 0448B 0448B 048B 048B 048B 048B 0									
1970 1970	0340 0340 0388 0388 03986 03986 0488 0488 0488 0488 0518 0518 0518 0518 0518 0518 0528 0538 0538 0538 0538 0538 0538 0538 053	1361	SO		45.5	32.1		2774		
1377 USS	0.038A 0.038B 0.038C 0.038C 0.038C 0.048A 0.048B 0.048B 0.048B 0.048B 0.048B 0.048B 0.051B 0.	2529	Sn		2.60	32.1	-	2783		
17.00 17.0	0.0386 0.0386 0.0386 0.0386 0.0444 0.0488 0.0488 0.0488 0.0488 0.0488 0.0488 0.0488 0.0516 0.0514	1377	SO		99.5	0.86	1	550	The second secon	
146 146	0336 PEGASUS 0338 PEGASUS 0338 PEGASUS 0339 PEGASUS 0444 PEGASUS 0448 PEGASUS 0510	1379	ns n		98.8	98.2		543		
1402 150	038F 038F 0448A 0448B 0448B 0448B 0448B 0448B 0448B 0448B 045B 051B 0551B 0551B 0551B 0551B 0558B	1961	SM	- 1	6.00	98.2	1	542		
Colored Barrers Colored Ba	0.0394 PEGASUS 0.0498 LUNIK 6 0.0498 LONIK 6 0.0488 COSHO 0.0518 COSHOS 7 0.0518 COSHOS 7 0.0538 COSHOS 7 0.0538 COSHOS 7 0.0538 COSHOS 7 0.0558 COSHOS 7 0.0558 COSHOS 8 0.0708 COSHOS 8	1462	Sn		6.96	98.4		516		
0.00	0.044A	1475	So	- 1	99.1	0.86		040		
CONTRICT 1993 USSP USS	0.048A 0.048B 0.048B 0.048B 0.048B 0.048B 0.048B 0.048B 0.048B 0.051A 0.	1381	50		06.50	31.7		404		
1	04884 04886 04886 04886 04886 04886 0518 05518 05518 05518 05530 05530 05538 05588	1 393	USSR		HEL TOCE	NTRIC ORBI				
12.00 1.00	0488 0486 0486 0518 0518 0519 05318 05310 0	1 420	O.S		106.8	89.8	-	1 02 7		
14.35	0486 0518 0518 0518 0518 0518 0518 0538 0538 0538 0538 0538 0558 0658 0658 0658 0658 0658 0658 065	1428	SO		106.5	89.8	-	1027		
CONTRICT	048E 048E 051C 051C 051B 051C 051B 053B 053B 053B 053B 053B 053B 053B 053B 055B	425	3	1	8.90	80.8	†	1028		
COSMOS 80 COSM	0510 05110 0	1435	So		9001	8.00		6101		
1430 1530	0518 TIROS 10 0518 COSMOS 7 05318 COSMOS 7 05332 COSMOS 7 05342 COSMOS 7 05343 COSMOS 7 05544 CENTAUR 05544 CENTAUR 06554 COSMOS 8 0656 COSMOS 8 0706 COSMOS 8 0707 COSMOS 8 0707 COSMOS 8 0706 COSMOS 8 0707 COSMOS 8 0772 COSMOS 8 0772 COSMOS 8 0772 COSMOS 8	10/2	5	- 1	4.00	0.00	- 1	7701		
433 USS 2 JUL 101.9 94.5 82.9	0518 0516 0517 0538 0538 05564 05564 05564 05564 05564 05564 05564 0656 0657 0657 0657 0657 0657 0657 0657	1430	50		1001	0.80	•	742		
05512 COSMOS 72 1440 USSP 16 JUL 096.8 08.8 09.8 05.1 05.1 05.1 05.2 JUL 096.8 JUL 066.8 JUL 066	051C 053B 053B 055A 055B	1433	SO		100.5	98.2		740		
1529 USS	0531D COSMOS 7 0533F COSMOS 7 0534F COSMOS 7 0558A COSMOS 7 0558B COSMOS 7 0558B COSMOS 8 0658B COSMOS 8 0658B COSMOS 8 0658B COSMOS 8 0706 COSMOS 8 0706 COSMOS 8 0728B COSMOS 8 0706 COSMOS 8 0706 COSMOS 8 0706 COSMOS 8 0706 COSMOS 8 0707 COSMOS 8 0706 COSMOS 8 0706 COSMOS 8 0707 COSMOS 8 0706 COSMOS 8 0707 COSMOS 8 0706 COSMOS 8 0707 COSMOS 8	1440	ns		98.8	98.5		604		
0554 COSMOS 72 11445 USSR 16 JUL 94.6 56.0 524 0554 0554 0554 0554 0554 0554 0554	0538 0538 0538 0538 0538 0538 0538 0588 058	1529	Sn		101.9	98.6		821		
0533 COSMOS 74 1444 USSR 16 JUL 0446 SSC 0524 SSC 0534 COSMOS 74 1444 USSR 16 JUL 0446 SSC 0534 COSMOS 74 1444 USSR 16 JUL 0446 SSC 0534 COSMOS 74 1444 USSR 16 JUL 0446 SSC 054 SSC 054 SSC 044 SSC 0	05330 C058MOS 7 0534 C058MOS 7 0554 Z0ND 3 0564 Z0ND 3 0564 C658 0658 C658 0706 C658 0706 C658 0706 C658 0707 0707 0728 C658	1442	USSP	1	94.1	26.0		457		
CORNEGE CORN	0554 ZOND 3 0554 ZOND 3 0554 ZOND 3 0558 CEN TAUR 0654 CEN S S 0658 CEN TAUR 0658 CEN TAUR 0656 COSMOS 8 0708 COSMOS 8	444	USSR		94.0	26.0		475 878		
CONTRACTOR CON	0554 ZOND 3 0568 ZOND 3 0568 ZOND 3 0568 ZOND 3 0568 CENTAUR 0658 CENTAUR 0658 CENTAUR 0658 COSMOS 8 0706 COSMOS 8 0707 COSMOS 8 0707 COSMOS 8 0707 COSMOS 8 0708 COSMOS 8		2000	- 1	94.00	0.00				
156 156	06588 CENTAUR 06584 CENTAUR 06584 CENTAUR 06559 CENTAUR 06550 CENTAUR 06	1 4 5 4	4550		HEI TOCE	NTRIC OPRI		•		
CONTRACTOR 1469 US 20 JUL CURRENT ELEMENTS NOT MAINTA 1506 US 10 MUG 122-2 242	0.586 0.586 0.638 0.643 0.653 0.653 0.655 0.655 0.655 0.655 0.655 0.656 0.658	1 4 58	ns		CURRENT	EL EMENTS	TOT	-		
1908 1908 1909	0638C 0638C 0638A 0658A 0658A 0658C	1 4 59	Sn		CURRENT	ELEMENTS	TOP	4		
Colored Colo	0653 0653 0653 0655 0655 0655 0655 0655	1 460	SO:		CURRENT	EL EMENTS	TOT	-		
Colored Centaure 1502 US 11 AUG 1548 CENTAUR 1502 US 11 AUG 108.0	06644 06554 06556 06556 06556 06556 06557 06574 06574 06574 06574 06574 06574 0705 0705 0705 0705 0705 0705 0705 0	200	31	1	22.22	2000		1		
0656 0657 0656 0656 0657 0657 0657 0657	0055A 0055B 0055C 0055C 0055C 0055G 0055G 0055A	1 503	o S		BARYCEN	TRIC ORBIT	7			
0656 0656 0656 0656 0566 0656 0656 0656	0658 0656 0656 0657 0657 0657 0657 0658 0658 0658 0658 0658 0658 0658 0658	1504	SA		108.0	0.00	٦	1083	The second secon	
1512 1514 1555 1515	0.6550 0.6551 0.7551 0.	1508	SO		107.8	80.0		1096		
1512 1512 1514 1515	0655 0655 0655 0655 0655 0655 0655 0655	1151	50		0.801	0.00	1	1084		
065G COSMOS 1514 US 13 AUG 107.8 90.0 1195 065G 152G US 13 AUG 107.8 90.0 1194 065G 152G US 13 AUG 108.0 90.0 1194 065A 152Z US 13 AUG 108.0 90.0 1194 065A 152Z US 13 AUG 108.0 90.0 1193 065A 165A 13 AUG 106.2 89.9 1093 065A 106A US 13 AUG 106.2 89.9 1093 065A 106SA US 13 AUG 106.1 89.9 1063 065A 106SA US 13 AUG 106.1 89.9 1063 065A 106SA US 13 AUG 106.1 89.9 1063 070 105SA US 13 AUG 106.1 106.1 106.1 070 105SA US 115.3 115.3	0656 0655 0655 0655 0658 0658 0658 0658	1512	ns ns		108.0	0.06	-	1 085		
0655 0657 0657 0657 0657 0658 0708	0656 0654 0655 0655 0658 0658 0658 0658 0708 0708 0708 0706 0706 0706 0706 070	1514	SM	- 1	108.0	0000	7	1083		
0655 0655 0655 0656 0656 0657 0658	0655 0655 0655 0658 0658 0658 0658 0658	1515	SO		107.8	000		1075		
065K 1577 US 13 AUG 108.0 90.0 1193 065K 065K 106.1 89.9 1126 1196 1196 065K 065K 2335 US 13 AUG 106.1 89.9 11095 065K 3410 US 13 AUG 106.1 89.9 1065 065K 526S US 13 AUG 106.1 89.9 1065 065K US 13 AUG 106.1 89.9 1065 1166 070B COSMOS 80 1570 USSR 3 SEP 116.9 1065 070B COSMOS 81 1572 USSR 3 SEP 116.0 56.0 1548 070B COSMOS 83 1572 USSR 3 SEP 116.0 56.0 1554 070C COSMOS 84 1573 USSR 3 SEP 116.0 56.0 1548 1065 072E COSMOS 84 USSR	065K 065K 065N 065N 065S 065S 070S 070S 070S 070S 070S 070S 070S 07	1521	Si		108.0	0.06	Ī	1085	The second secon	
OBSEL 1522 US 13 AUG 108-1 90.0 1196 OBSEN 3809 US 13 AUG 108-1 90.0 1196 OBSEN 3410 US 13 AUG 106-2 89.9 1095 OBSEN 5265 US 13 AUG 106-1 89.9 109-1 OBSEN 5363 US 13 AUG 106-1 89.9 106-1 OBSEN 5364 US 13 AUG 106-1 89.9 106-1 OFOB COSMOS 80 1570 USSR 3 SEP 116-3 56.0 154-8 OTOD COSMOS 83 1572 USSR 3 SEP 116-0 56.0 154-8 108-8 OTOD COSMOS 84 1572 USSR 3 SEP 116-0 56.0 154-8 154-8 154-8 154-8 154-8 154-8 154-8 154-8 154-9 154-9 154-9 154-9 154-9 154-9 154-9 </td <td>0.055L 0.055N 0.</td> <td>1577</td> <td>Sn</td> <td></td> <td>108.0</td> <td>0.06</td> <td>-</td> <td>1 083</td> <td></td> <td></td>	0.055L 0.055N 0.	1577	Sn		108.0	0.06	-	1 083		
0658 0658 0658 0658 0658 0658 0658 0658	0650 0650 0655 0655 0708 0708 0708 0708 0708 0708 0708 07	1 522	SO	- 1	10801	0.00	-	1084		
1550 1150 1550 1150 1550 1150 1550 1150	06550 06550 06550 0704 0708 0708 0708 0706 0706 0706 0706 0707 0706 0707 070	1800	500		10001	0.00		4001		
0650 5265 US 13 AJG 107.8 89.9 1161 1 0658 6290 USS 13 AJG 105.4 89.9 1065 1 1065<	0650 0658 0708 0708 0700 0700 0700 0700 0700 07	3,10	Sn	- 1	105.3	80.0	7	965		
OGSSR COSMOS B9 49 1065 0708 COSMOS 1570 USSR 13 AUG 1061 89.9 1085	0658 0708 0708 0708 0709 0709 0709 0709 070	5265	Sn		107.8	89.9	-	1 097		
OTOS COSMOS 80 1570 USSR 3 SEP 116.0 56.0 1548 0708 COSMOS 81 1571 USSR 3 SEP 115.3 56.0 1548 0700 COSMOS 82 1572 USSR 3 SEP 115.6 56.0 1548 0706 COSMOS 83 1574 USSR 3 SEP 116.0 56.0 1554 0706 COSMOS 84 1572 USSR 3 SEP 116.0 56.0 1554 0706 COSMOS 84 1572 USSR 3 SEP 116.0 56.0 1554 0726 USSR 3 SEP 116.0 56.0 1570 1513 0727 USSR 3 SEP 116.0 56.0 1541 1740 0726 USSR 3 SEP 116.0 56.0 1542 1041 0736 USSR 1 SEP 101.7 98.8 1029 1041 0736 USSR 1 SEP 101.6 98.8 <td< td=""><td>0708 COSMOS 8 0708 COSMOS 8 0700 COSMOS 8 0700 COSMOS 8 0706 COSMOS 8 0706 COSMOS 8 0726 COSMOS 8 0728 COSMOS 8 0728 COSMOS 8</td><td>5363</td><td>SO</td><td></td><td>105.4</td><td>666</td><td>- '</td><td>896</td><td></td><td></td></td<>	0708 COSMOS 8 0708 COSMOS 8 0700 COSMOS 8 0700 COSMOS 8 0706 COSMOS 8 0706 COSMOS 8 0726 COSMOS 8 0728 COSMOS 8 0728 COSMOS 8	5363	SO		105.4	666	- '	896		
070B COSMOS 81 1571 USSR 3 SEP 115.3 56.0 1548 070C COSMOS 82 1572 USSR 3 SEP 116.0 56.0 1554 11 070E COSMOS 84 1574 USSR 3 SEP 116.0 56.0 1554 11 070E COSMOS 84 1574 USSR 3 SEP 116.0 56.0 1550 1550 1550 1550 1570	0706 C0SMOS 8 0700 C0SMOS 8 0700 C0SMOS 8 0706 C0SMOS 8 0706 C0SMOS 8 0726 C0SMOS 8 0728 C0SMOS 8	1570	USSP USSP		114.0	26.0	-	1363		
07.0C COSMOS R2 1572 USSR 3 SEP 115.6 56.0 1554 07.0E COSMOS R3 1573 USSR 3 SEP 116.0 56.0 1562 1 07.0E COSMOS R4 1574 USSR 3 SEP 114.5 56.0 1562 1 07.0F 1575 USSR 3 SEP 114.5 56.1 1513 1 07.0G 1560 USSR 3 SEP 114.5 56.1 1513 1 07.2A 1583 US 10 SEP 101.7 98.8 1029 1 07.2E 1932 US 10 SEP 101.6 98.8 1029 98.8 1059 07.2E 1932 USSR 18 SEP 115.6 98.3 91.2 07.3A COSMOS 86 1584 USSR 18 SEP 115.4 56.0 1640 07.3C COSMOS 89 1587 USSR 18 SEP 115.4 56.0 1652 1	070C C0SMOS 8 070C C0SMOS 8 070E C0SMOS 8 070E C0SMOS 8 072E 072A 072E 072A C0SMOS 8	1571	USSR		115.3	56.0	'-	1393		
070D COSMOS 83 1573 USSR 3 SEP 116.0 56.0 1562 1 070E COSMOS 84 1574 USSR 3 SEP 116.0 56.0 1552 1 070E 1575 USSR 3 SEP 116.0 56.0 1573 1 072A 1580 USSR 3 SEP 116.0 55.4 1740 1 072A 1583 US 10 SEP 101.7 98.8 1029 1 072E 1931 US 10 SEP 101.6 98.8 1029 98.8 1156 073E USSR 18 SEP 100.3 98.8 1156 98.3 91.2 073G COSMOS 86 1584 USSR 18 SEP 115.4 56.0 1640 1 073C COSMOS 89 1587 USSR 18 SEP 115.2 56.0 1655 1	0705 COSMOS 8 0706 COSMOS 8 0706 0724 0728 0726 0726 0726 0738 COSMOS 8 0738 COSMOS 8	1572	USSR		115.6	26.0	-	1418		
070F 1575 USSR 3 SEP 114.5 56.1 1513 072A 3045 USSR 3 SEP 116.0 55.4 1740 1 072A 1580 USSR 3 SEP 116.0 55.4 1740 1 072D 1581 USSR 10 SEP 101.6 98.8 1029 072E 1931 USSR 10 SEP 100.3 98.8 1156 073A COSMOS 86 1584 USSR 18 SEP 115.0 56.0 1631 073C COSMOS 89 1587 USSR 18 SEP 115.4 56.0 1652 1533 USSR 18 SEP 115.4 56.0 1652 1	070F 070G 072A 072E 072E 073A 073A 073A	1573	USSR		116.0	26.0		1444		
0706 0724 0725 0726 0727 0736 0738 0738 0730 0730 0730 0730 0730 0730	0706 0724 0725 0725 0727 0734 COSMOS	1575	11880		114.5	56.1	1-	1360		
072A 1560 US 10 SEP 101.7 98.8 1041 072D 072E 1931 US 10 SEP 101.6 98.8 1029 072E 1931 US 10 SEP 100.3 98.8 1156 073A COSMOS 86 1584 USSR 18 SEP 115.0 56.0 1631 1 073G COSMOS 88 1586 USSR 18 SEP 115.4 56.0 1652 1 073D COSMOS 89 1587 USSR 18 SEP 116.2 56.0 1652 1	0724 0725 0726 0727 0734 COSMOS 0738 COSMOS	3045	USSR		116.0	55.4	_	1264		
0.720 0.720 1.583 0.5 10 SEP 101.0 98.8 1059 0.725 0.725 0.724 0.527 0.534 0.535 0.534 0.536 0.534 0.536 0.534 0.538 0.534 0.538 0.534 0.538 0.5	072F 073F 073B COSMOS 073B COSMOS	1 580	SA		101.1	98.8	۳.	648		-
072F 1932 US 10 SEP 100.3 98.3 912 US 10 SEP 100.3 98.3 912 US 10 SEP 100.3 98.3 912 US 10 SEP 115.0 56.0 1640 USSR 18 SEP 115.4 56.0 1640 USSR 18 SEP 115.4 56.0 1640 USSR 18 SEP 115.4 56.0 1652 USSR 18 SEP 116.2 56.0 1655 USSR 18 SEP 116.3 56.0 1655 USS	072F 073A COSMOS 073B COSMOS	1583	200		000	8.86		040		
073A COSMOS 86 1584 USSR 18 SEP 115.0 56.0 1631 1 0738 COSMOS 88 1585 USSR 18 SEP 115.4 56.0 1640 1 0730 COSMOS 89 1587 USSR 18 SEP 116.2 56.0 1665 1	073A COSMOS 073B COSMOS	1932	SO O		100.3	98.3	1	640		
0738 COSMOS 88 1585 USSR 18 SEP 115-8 56-0 1652 1 0730 COSMOS 89 1587 USSR 18 SEP 116-2 56-0 1665 1	SONSO COSNOS	1584	USSR		115.0	56.0	-	1284		
0730 COSMOS 89 1587 USSR 18 SEP 116.2 56.0 1665 1	0000	1585	USSE		400	2000	1	335		
	0730 COSMOS	1587	USSR		116.2	26.0		1358		

SIGNA	NATIONAL DESIGNATION	MAK	CATALOS NJ MBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI-	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREG.(MHZ)	NOTES
965 LA	LAUNCHES	(CONT.D)									
965 07	073E CO	COSMOS 90	1588	USSR	18 SEP	116.8	56.0	1688	1383		
	36		1 590	USSR		116.3	26.0	1655	1377		
	77		1617	USSR		117.3	56.1	1760	1362		
	31		2647	USSR		116.0	56.0	1653	1357		
	18A		1613	SO		123.6	144.2	3270	411		
		060 2	1620	s n		100.5	87.3	1166	404		
			1 625	SO	- 1		87.3	1252	408		
	1	SPLORER 29	1726	son Son		120 - 3	59.3		1118		•
	268		2700	Sn	1	119.1	9.6	1	1 068		
			2888	S		121.3	59.1		1153		
		VENERA 2	1730	USSR		HEL TOCE	NTRIC ORB	-1			
		EXPLORER 30	1739	Sn		100.6	59.7		685		
	33B		1739	SO		100	59.7		710		
	30		2088	Sn Sn	- 1	101	59.7		714		
	-A A96		1778	FRANCE		108.4	34.2		525		
	968		1 805	FRANCE	- 1	108.1	34 •2		525		
		ALDUETTE 2	1 804	CANADA		120.7	8.62		508		
			1806	Sn		121.1	79.8		507		
	980		1868	SO		118.3	70.8		510		
	386		1944	Sn	- 1	118.2	79.8		211		
	18F		1948	s v		119.6	7.07		513		
	18H		2002	Sn	- 1	120.7	19.0		808		
			2153	SO		120.6	79.7		505		
	AL AL	1-1	1814	LANCE	- 1	2.00	75.8		742		
	100		1934	FRANCE		98.9	76.4	733	689		
			1 941	FRANCE		100 HEL TOCK	NTOTO DOB	-	40		
		COSMOS 100	1843	USSR		97.3	65.0	711	556		
	l		1844	USSR		97.2	64.9	639	616		
		ES 4	1870	SO		CURRENT	ELEMENTS	NOT WAIN	NIAINED		
	9		4476	0.S	1	174.5	26.4	7977	136		
	A60		1 864	S		104.9	0.00	1079	806		
	26:		2086	ns		103.3	89.1	953	879		
	060		2226	Sn		107.1	89.0	1292	868		
		FOI SUNSUUS	2353	80		105.3	56.0	1131	573		
		•	1 869	USSR		96.3	26.0	809	557		
			1937	USSR		9.96	55.9	624	267		
4 996	AUNCHEN										
	AOC		2428	CNKN	CNKN	ų	35.0	- 2	184		*:
996	0000		2430	CONKR	CNXN	CURRENT		Z	NTAINED		*
	15A	The second secon	0	ns	28 JAN	105.8	8.6	207	862		
	15B		0 -	SO	28 JAN	105.8	800		862		
	150		• -	Sin	28 JAN	104.2	89.8	077	841		
)5E		an c	S	28 JAN	109.5	80.8		1079		
	100		,	200			-	000	600		

DESIGNATIONAL 1965 LAUNCHES (C 1965 COUSE 1966 COUSE	A 1	CAT ALOG	SOURCE	LAUNCH	PERIOD	INCLI-	APOGEE	PERIGEE	TRANSMITTING	1016
COSS COSS COSS COSS COSS COSS COSS COSS	A 1				MINOIES	NATION	E		FREG . (MHZ)	MOTES
00050 00060 00088 00088 00088 00088 00088 00138 00138 00138 00168 00168 00168 00168 00168 00168 00168 00168										
00089 000889 000888 000888 000888 000888 000888 00188 00188 00188 00188 00188 00188 00188 00188 00188 00188 00188 00188 00188 00188 00188 00188		4587	Sn	28 JAN	105.9	105.9 89.8	1046	1029		
000088 00088 00088 00088 00138 00138 00138 00168 00168 00169 00169 00169 00169 00169	4	1982	SO		10001	97.8	835	702		
000880 000880 001334 001334 00134 00168 00168 00168 00168 00168 00168 00168 00168	4	1 983	Sn		100.3	97.8	854	698		
0008E 00133A 00133B 00133G 0133G 0134G 016B 016B 016B 016B 016B 016B 016B 016B	4	2065	SO	- 1	6.86	97.9	940	169		
00133A 001335 001335 001335 0105A 0105B 0105B 0105B 0105B 0105B	4	2154	SO	3 FEB	1000	7.10	820	708		
01135 01135 01135 01135 01136 01166 016		2016	FRANCE	- 1	117.9	34.0	2000	100		
0113G 0113J 0113J 0113G 0116G 0116G 0116G 0116G 0116G 0116G 0116G 0116G 0116G 0116G 0116G 0116G 0116G 0116G 0116G		2023	FRANCE		114.0	30.0	2344	477		
013J 0116A 0116B 0116C 0116C 0124B 024B		2161	FRANCE		117.1	34.1	2589	512		
013K 0116A 0116B 0116B 0116D 0216E 0224B		3970	FRANCE		113.8	34.0	2313	164		
016A 016B 016C 016C 024A 024B		5420	FRANCE		113.5	34.0	2286	493		
00168 01166 01266 02248 02248	0	2001	U.S		113.4	101.2	1416	1357		
0000000		2096	Sn		113.4	101.1	1417	1356		
000000		2223	Sn	-	111.9	100	1387	1243		
00000		2224	SO		115.0	100.9	1566	1351		
3090		6214	SO		114.4	80101	1118	2040		
200		2112	500		1050	80.08	1120	695		
'n		2386	Sn	- 1	105.0	80.0	1107	892		
		3590	SO		99.1	1.68	191	675		
025A 0VI	4-	2121	Sn		104.0	144.4	1011	885		
0258 OVI	-3	2122	Sol		105.0	144.6	1055	986		
30		2123	50		0.401	144.4	1011	885		
90		3611	us US		105.0	144.5	1060	932		
,0		4007	Sn		103.5	144.2	932	917		
9		5 361	Sn		105-1	144.6	1039	196		
0		5599	SO		1000	0.00	426	929		
,		6212	55	- 1	10001	98.5	106	622		
,0		2177	Sn		101.9	8.86	1084	624		
0		2178	SO	- 1	97.9	98.5	718	601		
C25F	•	2179	SO		7 • 66	CENTOTO OB	311	010		
027A	A 10	2126	USSB	- 1	HELIOC	ENTRIC OPB				
		2131	USSR		BARYCE	NTRIC DRBI				
027F		2132	USSR		BARYCE	NTRIC ORBI	-			
0	-	2412	S		2001	35.0	798	782		
30		2145	cs		2.66	35.0	751	739		
, 0	-1	2150	ns		147.5	82.4	5399	349		
0348		2167	Sn		142.2	82.4	4948	349		
966 6340	011 307	5077	1000		96.5	65.0	607	580		
30	0	2169	USSR		96.4	64.9	646	532		
996	805 2	2173	SA		108.0	100.5	1182	1096		
966 6408		2174	Sn		107.8	100.4	1174	1083		
996		2176	Sn	- 1	103.2	200	070	950		
996		2225	200		100.0	89.7	845	166		
999		2644	SIN	- 1	105.5	89.7	1193	845		
10		3591	SO		103.3	89.7	100	856		
041=		4555	Sn		103.2	89.7	972	000		
044A	EXPLORER 32	2183	55		IOT OF DATE	NTOTO COBE	1964	653		
5		2010	200		CURREN	T EL EMENTS	MAI	NTAINED		
050A		2201	OS		143.0	40.8	726	1		
, 0		2206	Sn		143.0	8.04	4718	640		
998		2498	Si		140.5	40.0	4 9 3 5	704		
0,0		2516	SO	16 508	1333.9	4.5	33877	33645		
200				. 1						

SOURCE LAUNCH PRENTED INVELL AND E PRENTED FROM HITTING NATION NATION NATE PRENTED FROM HITTING NATION		The second secon		The second second second	The second secon	The second secon		The second secon	-		
Control Cont	SIGNATIO		CAT AL DG NU MBER	SOURCE		PERIOD MINUTES	INCLI-	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREG . (MHZ)	NOTE
Control Cont		s									
Colored Colo			2215	SO			ELEMENT		33683 VTAINED 33702		
PACES 1 2 2 2 1	1		2218	SO			44	34014	33694		
Control Cont			2220	Sn			4.2	34192	33734		
Name			2221	s o	9 9	CURRENT	ELEMENT	NOT MAIN	TAINED		
Colored State Colored Stat			2253	Sp	4 4	180.1	84.6	584	2528		**
0555 EXPLORER 33 2257 USS 15 JUN 90-2 EVERTER ERENTS NOT ACK INTALED OF STATE OF STA		COSMOS 12	2254	USSR	2	96.5	6.49	613	571		,
Control		α	2257	USSR	s	96.2 CURRENT	ELEMENTS	MOT TON	VI A INED		
Colored Colo			2324	5	1	97.2	144.1	630	615		
00000000000000000000000000000000000000			2327	SO		104.9	144.2	100	978		
100 100			2328	Sn.		105.2	144.2	101	8666		
0770 073-3 2369 US 4 AUG 132-6 81.4 4117 356 0 570 0 5			2337	ns n		105.2	144.2	100	1001		
PIONEER 7 2 2996 US 11 AAG HELIOCENTRIC ORBIT 100 1052		V3-	2389	ns		132.6	81.4	411	356		
Proveer 7 2396 US 17 AUG HETOCENTRIC ORBIT 100 1052 1035			2800	S	.	135.8	4.4	433	421		
Name			2395	SO		BARYCEN	TRIC ORBIT				
100 1052 1053 1054 1055 1	- 1		2 398	Sn	- 1	HEL TOCE	NTRIC DEB		Paint of the State		
100 1054 1054 1054 1054 1054 1054 1055 1			2401	ns n		106.7	88.8		1052		
0776C			2413	Sn		106.7	88.8	-	1054	The state of the s	
Color Colo			2580	SO		105.2	89.1		930		
Color Colo	- 1		7558	500	- 1	106.3	88.8	7	1036		
0766 0766 0766 0766 0766 0766 0776 0776			8000	Sn		106.4	88.8	-	1039		
Second Color	-		2401	SO	- 1	100.6	80.00	- [3666		
077C ERS 15 077C		"	2411	SO		167.5	89.9	m r	3674		
Color		٦,	2412	OSS		SEI FNOC	STORES OF	<u></u>	3004		-
Columb C			2418	Sn		100.7	98.5	89	603		
084 B	- 1		2422	Sn		100-7	98.5	80	46		
1967 1967 1968		200	2426	50		114.5	101-0	-	1387		
Color Colo	- 1	100	2436	So	- 1	114.5	10	1489) W		
0896			2518	Sn		115.9		1562	46		
0897	-		6777	50		114.2		1467	UM		
089A 2481 US 5 OCT 167-5 90-3 369B 368S 089A LGRS B 2520 US 5 OCT 167-5 90-3 3696 3691 089A LUNA 12 2500 USSR 22 OCT 167-5 90-3 3696 3691 095B LUNA 12 2514 USSR 22 OCT 167-5 90-6 3779 36792 36793 136-470-137-350 111A ATS 1 US 11 DEC 141-6 90-1 477 477 477 477 477 477 477 477 477 477 478 477 478 477 476 477 478 478 478 478 478 478 478 478 478 478 476 478 <td></td> <td></td> <td>8791</td> <td>SO</td> <td></td> <td>114.6</td> <td>2</td> <td>1552</td> <td>m</td> <td></td> <td></td>			8791	SO		114.6	2	1552	m		
0849 EGRS 8 2520 USS 25 OCT 107.0 0949 LUNA 12 2519 USS 25 OCT 107.0 0956 LUNA 12 2514 USS 25 OCT 107.0 0956 LUNA 12 2514 USS 25 OCT 105.0 0956 LUNA 12 2514 USS 25 OCT 105.0 11.0 A INTELSAT 2 F-1 25619 USS 11 DEC 141.6 11.10 A INTELSAT 2 F-2 2610 US 11 DEC 141.6 096.1 4775 477 477 11.10 OVI-9 2611 US 11 DEC 141.6 096.1 475 477 11.10 OVI-10 2611 US 11 DEC 141.5 09.1 476.2 478 136.470.137.350		1	2481	Sn		167.5	9	3698	Q V		
0958 INTELSAT 2 F-1 2514 ITSO 26 OCT 718.0 17.5 37.286 3079 136.470.137.350 10958 INTELSAT 2 F-1 2514 ITSO 26 OCT 718.0 17.5 35792 35783 136.470.137.350 1110.0 US 11 DEC 141.6 99.1 4775 477 477 477 477 477 477 477 477 47		6 -	2520	USSR	200	SELENDO	NTRIC OR	ິະ	C		
096A INTELSAT 2 F-1 2514 1T50 26 OCT 778.0 17.5 37286 33079 136.470.137.350 1110A AT5 1 2608 US 11 DEC 141.6 99.1 4775 477 4775 477 1111B OV1-10 2611 US 11 DEC 98.5 93.3 750 627 627 627 1111B OV1-10 2621 US 11 DEC 98.5 93.3 750 627 627 1111D C 98.5 93.3 750 627 627 627 627 627 627 627 627 627 627			2513	SA	n	BARYCEN	RIC ORBI		1.7	The second section is a second	-
1110 OVI-10 2600 US 11 DEC 141.6 99.1 4775 3775 150.0175		ELSAT 2 F-	2514	1150	91	718.0	10	37.286	300	75 A 70 . 137	•
111B	-		8092	50		141.6	000	4775	4		
1110		-	2611	ns		98.5	63	750	627		
LAUNCHES LAUNCHES 001A INTELSAT 2 F-2 2639 ITSO 11 JAN 1436.9 6.5 35849 001B - 001X	- 1		2621	SM	- 1	98.6	9	758	633		
0018 - 001X		tu.	2622	sn	-	141.5	5	4 762	874		
0018 - 001X 2645 US 11 JAN SEE NOTE 9* 33823 US 18 JAN 1329.5 3.8 33823 0038 2650 US 18 JAN 1330.6 3.6 33898 003C 2651 US 18 JAN 1332.1 3.6 33875		INTELSAT 2 F-	2639	1150	_	436.		584	575		
CO3A 2645 US 18 JAN 1329.5 3.8 33823 003B 2649 US 18 JAN 1329.9 3.6 33823 003B 2650 US 18 JAN 1330.6 3.6 33898 2651 US 18 JAN 1332.1 3.6 33875		001x	6665	ns		SEE NO					6
003C 2650 US 18 JAN 1330.6 3.6 33875 003C 2651 US 18 JAN 1332.1 3.6 33875			2645	SO	8	329		38	33523		
003D 2651 US 18 JAN 1332-1 3-6 33875			2650	50	9 00	330		38	33494		
			2651	ns	00	332.		38	33576		

Colored Colo	MINI	,				OBJECT	S	N ORBI	11					
907 LAUNCHES (CONTID)	NA TI	NATION	NAME		CATALOS	SOURCE		5	RIOD	INCLI- NATION	R .	W	TRANSMITTING FREO.(MHZ)	NOTES
997 000E 998 0005 999	1961	LAUNCHE	S											
967 003G 967 003G 967 003G 968 4	1961	003E			2652	Sn		ZZ	1334 - 1	3.7	33972	(L) (L)		
907 0060 907	1961	0036			2654	SO		Z	1339.5	3.8	34112	L. L		
947 0046 ESSA 4 2647 US 26 JAN 113-4 101-9	1961	0037			2660	ns on		ZZ	CURRE	ELEMENTS	NOT MAIN) Z		
997 00000 997 000000 997 0	1967	006A	ESSA 4		2667	Sh		7	113.4	0.101	1442	1327		
997 0000 997	1961	0000			2706	c so		ZZ	114.2	102.1	1451	1395		
997 0100 E 997 0100 E 997 0110 B	1961	0900			2707	Sn		AN	112.6	101.7	1464	1233		
STATE STAT	1961	000E			2669	SOO		E B Z	101.4	99.1	867	787		
Column C	1961	9010			2741	ns		E8	101.4	0.66	871	784		
967 01116 967 01114 967 01	1967	CIIA			2674	FRANCE		E B	103.7	30.0	1305	563		
907 011H 907 01H 907 0	1961	0116			2688	FRANCE		EB	101.0	40.0	101	545		
927 01114 927 01114 927 01114 927 01114 927 01144 927 01444 927 01444 927 01444	1967	о111			2689	FRANCE	- 1	69	103.6	39.0	1320	535		
995 011N 995 01N	1961	MIL			2900	FRANCE		E B	101	39.9	1080	543		
997 011P 997 01P 997 011P 997 01P 997 011P 997 011P 997 011P 997 011P 997 011P 997 011P 997 0	1961	011N			2990	FRANCE	- 1	E8	100.8	39.9	1055	541		
967 01140 967 01	1961	01119			3742	FRANCE		EB	101.3	39.9	1093	544		
967 0146 967	1967	0110	DIADEME 2		2680	FRANCE	- 1	8	108.4	30.4	1850	588		
757 014C	1961	9148			2682	FRANCE		EB	110.0	39.4	1866	589		
967 014FE 967 01	1961	0140			2084	TRANCE	- 1	000	4.601	39.9	1010	287		
967 0144 967 0144 967 0144 967 0144 967 0144 967 0144 967 0184 967 0184 967 0184 967 0184 968	1961	10 14 10			2685	FRANCE		EB	109.1	38.9	1799	577		
967 01844 COSMOS 144 29935 FRANCE 15 FEB 10814 3914 811.2 967 0184 967 0184 967 0184 967 0184 967 0184 967 0184 967 0184 967 0184 968 0 6 6 7 8 18 18 18 18 18 18 18 18 18 18 18 18 1	1961	2146		The second second	3589	FRANCE		E 8	115.2	38.8	2320	1119		
967 0184 CUSMUS 144 2695 USSR 28 FEB 96-1 81-1 967 0184	1 367	014H			3935	FRANCE		68	108.4	39.4	1734	572		
Value Valu	1967	0184	4		2695	USSR		EB EB	96 • 1	81.1	597	50.5		
967 026A INTELSAT 2 F-3 2717 1150 23 MAR 1434-6 7-2 3 967 0278 COSMOS 151 2 720 USSR 24 MAR 96.6 56.0 967 0348	1 96 7	020A	3		2703	ns		AR	94.8	32.8				
967 0278 CUSMUS 151 2720 USSR 24 MAR 96.6 56.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1961	326A	ELSAT	F	2717	1150		AR	1434.6	7.2	S	S		
967 0349 967 0349 967 0349 967 0349 967 0349 967 0349 967 0349 967 0346 968 0346 969	1961	A720	12		2721	1558		AB	96.66	26.0	617	27.5		
967 0343 967 0344 967 0345 967 0346 967 0346 967 0346 967 0346 967 0346 967 0346 967 0346 967 0346 967 0346 967 0356 967 0356 967 0356 967 0356 967 0356 967 0366 968 036 967 0366 967 0366 967 0366 967 0366 967 0366 967 0366 967 0366 967 0366 967 0366 967 0366 967 0366 967 0366 967 0366 968 0366 967 0366 967 0366 967 0366 968 036	1961	034 A			2754	ns		PR	106.4	90.5	1 070	1048		
034C 034C 034C 034C 034C 034C 034E 034E 034E 034E 034E 034E 034E 034E	1961	0343			2 755	SO		20	106.5	90.2	1081	1051		
034E \$ 543 US 14 APR 104.7 90.2 034F 034E 054 US 14 APR 104.7 90.2 035A ESSA 5 2754 US 17 APR 113.5 101.8 035A COSMOS 156 2758 US 20 APR 113.5 101.8 036C COSMOS 156 2762 USSR 27 APR 96.4 81.1 039B COSMOS 156 2763 USSR 27 APR 96.7 81.1 040B ERS 20 USSR 27 APR 96.4 81.1 040B ERS 20 USSR 27 APR 96.7 81.1 040B ERS 20 USSR 28 APR 6708.7 37.1 12 040B ERS 20 USSR 28 APR 6708.7 37.1 12 040B ERS 27 USSR 28 APR CURRENT ELEMENTS NO 045.8 045.8 045.8 045.8 045A COSMOS 158 2769 U	1967	034C			2777	Si		200	104.0	600	1066	1067		
034F 6718 US 14 APR 104.7 90.2 0346 255A 2764 US 17 APR HARYCENTRIC ORBIT 035A 275A US 20 APR 113.5 101.8 036B 275A US 20 APR 113.5 101.8 036B 276C US 20 APR 113.5 101.8 036C 276Z USSR 27 APR 96.4 81.1 036D 276Z USSR 27 APR 96.4 81.1 039A COSMOS 156 276Z USSR 27 APR 96.4 81.1 040C ERS 18 276Z USSR 27 APR 96.4 81.1 040C ERS 18 276Z USSR 27 APR 96.4 81.1 040C ERS 20 276Z USSR 28 APR 678G 7.3 040E ERS 27 276G US 28 APR CURRENT ELEMENTS NO 045G 277G US <td< td=""><td>1967</td><td>034E</td><td></td><td></td><td>1843</td><td>US</td><td></td><td>PR</td><td>104.7</td><td>90.2</td><td>663</td><td>971</td><td></td><td></td></td<>	1967	034E			1843	US		PR	104.7	90.2	663	971		
0346 0356 ESSA 5 0368 0368 0368 0369 0369 0369 0369 0369 0369 0369 0369	1961	034F			6718	Sn		PR	104.7	90.2	966	896		
036A ESSA 5 036B 036B 036B 036B 036B 036B 036B 036B	1957	0346			2764	S		200	u	2.00	1000	1029		
0366 0366 05 APR 113.5 101.8 103.0 0366 05 APR 113.5 101.8 103.1 0366 05 APR 112.3 102.1 0396 05 APR 112.3 101.9 10396 05 APR 112.3 101.9 10396 05 APR 112.3 101.9 103.9 05.9 APR 112.3 101.9 103.9 05.9 APR 112.3 101.9 104.0 04.0 04.0 04.0 04.0 04.0 05 CORNES 18 APR CORNES 15 APR	1961	035A	SSA		2757	ns		PR	J	101.8	1423	1356		
036C 036C 036C 036C 036C 036C 036C 036C	1961	0368			2758	Sn		PR	113.5	101.8	1422	1359		
039A COSMOS 156 2762 USSR 27 APR 96.4 81.1 04.08 04.00	1967	0360			2976	SO		200	112.3	102.1	1414	1260		
039B 2763 USSR 27 APR 96.7 81.1 040B ERS 18 2766 US 28 APR 6689.6 7 37.1 12 040B ERS 276 US 28 APR 6708.7 37.1 12 040B ERS 276 US 28 APR CURRENT ELEMENTS NO 040B ERS 27 US 28 APR CURRENT ELEMENTS NO 040B ERS 27 US 28 APR CURRENT ELEMENTS NO 045C USS 28 APR CURRENT ELEMENTS NO 74.0 045C USS 19 MAY 97.8 84.9 74.0 74.0 045C USSR 15 MAY 100.5 74.0 74.0 74.0 045C USSR 17 MAY 1173.3 53.2 6 6 046F COSMOS 159 280.5 USSR 17 MAY 1173.3 89.6	1 367	039A	5 15		2762	USSR		PR	96.4	81.1	610	295		
0400 ERS 18 2765 US 28 APR 5089.6 37.1 12 0400 ERS 20 2767 US 28 APR 6708.7 37.1 12 0400 ERS 20 2768 US 28 APR CURRENT ELEMENTS NO 040E ERS 27 US 28 APR CURRENT ELEMENTS NO 040E ERS 27 US 28 APR CURRENT ELEMENTS NO 043B CURRENT ELEMENTS NO US 28 APR CURRENT ELEMENTS NO 045C US 28 APR CURRENT ELEMENTS NO CURRENT ELEMENTS NO 045C US 28 APR CURRENT ELEMENTS NO CURRENT ELEMENTS NO 045C US 28 APR CURRENT ELEMENTS NO 74.0 045C US 15 MAY 100.4 74.0 045C USSR 15 MAY 100.5 74.0 046- COSMOS 159 280.5 USSR 17 MAY 1173.3 53.2 6 046- COSMOS 159 280.5 USSR	1961	0398			2763	USSR		a d	2.96	81.1	674	530		
040C ERS 18 2767 US 28 APR CURRENT ELEMENTS NO 040E ERS 27 2768 US 28 APR CURRENT ELEMENTS NO 040E ERS 27 2770 US 28 APR CURRENT ELEMENTS NO 040E ERS 27 2770 US 28 APR CURRENT ELEMENTS NO 045B COSMOS 158 2770 USS 15 MAY 97.8 84.9 74.0 045C 2780 USSR 15 MAY 100.5 74.0 045C 2802 USSR 15 MAY 100.2 74.0 0465 0465 0465 045C 2805 USSR 17 MAY 1173.3 53.2 6 0466 0488 0466 2807 USSR 17 MAY 1173.3 53.2 6 0488 0488 053.8	1961	A040			2765	50		200	67089.0	37.1	1238405	102991		
040D ERS 20 2768 US 28 APR CURRENT ELEMENTS NO 040E ERS 27 2770 US 28 APR CURRENT ELEMENTS NO 043B 043B 2770 US 28 APR CURRENT ELEMENTS NO 045A COSMOS 15B 2770 USSR 15 MAY 100.4 74.0 045A COSMOS 15B 2802 USSR 15 MAY 100.2 74.0 045C USSR 15 MAY 100.2 74.0 74.0 046A COSMOS 159 2805 USSR 17 MAY 1173.3 53.2 6 046F 2807 USSR 17 MAY 1173.3 53.0 6 048B LOSMOS 159 2807 USSR 17 MAY 1171.0 53.0 6 048B LOSMOS 159 2807 USSR 17 MAY 106.9 89.6 048B LOSMOS 159 2826 USSR 17 MAY 106.9 89.6 053A LOSMOS 159 2826	1961	040	5		2767	ns o		PR	CURRE	ELEMENTS	NOT MAIN	TAINED		
04.0E ERS 27 2769 US 28 APR CURRENT ELEMENTS NO 04.0F 04.3B COSMOS 158 2780 US 28 APR CURRENT ELEMENTS NO 04.3B COSMOS 158 2780 USSR 15 MAY 97.8 84.9 04.5C COSMOS 158 2862 USSR 15 MAY 100.4 74.0 04.5C COSMOS 159 2862 USSR 15 MAY 100.2 74.0 04.6F COSMOS 159 2805 USSR 17 MAY 1171.0 53.2 6 04.6F COSMOS 159 2805 USSR 17 MAY 1171.0 53.0 6 04.6F LOSMOS 159 2805 USSR 17 MAY 1171.0 53.0 6 04.8B LOSMOS 159 2805 USSR 17 MAY 106.9 89.6 05.3A LOSMOS 159 281 USSR 106.9 89.6	1961	0400	5 2		2768	OS		PR	CURRENT	ELEWENTS	NOT MAIN	TAINED		
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045A COSMOS 158 2801 USSR 15 MAY 100.4 74.0 045B 045C 2823 USSR 15 MAY 100.5 74.0 045C 2823 USSR 15 MAY 100.1 74.0 046A COSMOS 159 2805 USSR 17 MAY 1171.0 53.0 046F 2807 USSR 17 MAY 1171.0 53.0 048B 2811 US 18 MAY 106.9 89.6	67	0438			2780	ns	1	A Y	97.8	84.9	768	548		
045C 2862 USSR 15 MAY 100.5 74.0 045C 2862 USSR 15 MAY 100.2 74.0 045C 3737 USSR 15 MAY 100.2 74.0 045C 2862 USSR 17 MAY 1171.3 53.2 6946= 2807 USSR 17 MAY 1171.0 53.0 6046= 2807 USSR 17 MAY 1171.0 53.0 6048B 2811 US 18 MAY 106.9 89.6 053A	1961	045A	S 15		2801	USSR		AY	100.4	74.0	822	736		
045C 2853 USSR 15 MAY 100:2 74:0 0450 045A C0SMOS 159 2805 USSR 17 MAY 1173:3 53:2 6 046= 2807 USSR 17 MAY 1171:0 53:0 6 048B 2807 US 18 MAY 106:9 89:6 053A 053A	196	0458			2802	USSR		*	100.5	74.0	844	728		
0464 COSMOS 159 2805 USSR 17 MAY 11733 53.2 6 0467 2924 USSR 17 MAY 1171.0 53.0 0468 2807 US 18 MAY 106.9 89.6 0488 2811 US 18 MAY 106.9 89.6 053A 2826 US 31 MAY 106.9 89.6	1967	0000			2823	USSR		**	2001	0.41	820	715		
0465 0488 0488 0488 053A 053A 053A 0538 1710 105.9 89.6 0538 0538 106.9 89.6 69.9	1061	0400	-		2805	ussn		A Y	1173.3	53.2	60042	901	And the second s	
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4000 A100 A100 A100 A100 A100 A100 A100	1967	0488			2811	Sn		××	106.9	90.09	1102	1070		
	1961	053A			0282	50	- 1		103.5	6.60	616	506		

1967 CAUNCHE S CONTO D	NAT TON	. M.	FREG . (MHZ)
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0535 CRAVITY GRADIENT 5 2834 US 31 MAY 0534 MARTHER 5 2842 US 31 MAY 0534 MARTHER 5 2843 US 31 MAY 0555 AURGRA 1 2845 US 31 MAY 0556 CORP. CRAVITY GRADIENT 5 2845 US 31 MAY 0556 CRAVITY GRADIENT 5 2845 US 31 MAY 0557 AURGRA 1 2845 US 31 MAY 0558 AURGRA 1 2845 US 31 MAY 0559 CRAVITY GRADIENT 5 2850 US 0550 CRAVITY GRADIENT 5 2850 US 31 MAY 0550 CRAVITY GRADIENT 5 3 MAY 0550 CRAVITY GRADIENT 5 MAY 0550 CRAVITY	69.9	915	
0533E 0533E 0534 0553E 0553A 055A 055		-	
0534 0534 05		-	
6534 6634 MARTINER 5 6635 MARTINER 5 6656 6656 6656 MARTINER 5 6656 6656 MARTINER 5 6656 MARTINER 6		•	
0053J 0053J 0053J 0053J 0053J 0050B		-	
0650 A MARTNER S	6.69	0	
0653 AURGRA 1 2876 US 29 JUN 0666 US 20 JUN 0666 US 2663 US 29 JUN 0666 US 2663 US 29 JUN 0666 US 2663 US 29 JUN 0666 US 2664 US 2663 US 29 JUN 0666 US 2665			
0655 0656 0666 0666 0666 0666 0666 0666	ROLL URBII	4085	
0650 0660	1076 1078	400	
2865 US 111AN 3 C-14 2865 US 1 JUL 0666 DODGE 2865 US 1 JUL 0720 CN1-12 2883 US 14 JUL 0720 CN1-12 2883 US 27 JUL 0720 CN2-12 CN2-12 CN2-12 US 28 SEP 0720 US	3922	3824	
0666 0666 0666 0666 0666 0666 0666 0666 0666 0666 0666 0666 0666 0666 0666 0720 0730	33567	32083	
6666 Cooker Dodge 2866 US 1 JUL Cooker Dodge 2868 US 1 JUL Cooker Dodge 28	33588	32986	
066F DODGE 2866 US 1 JUL 066F DODGE 2867 US 1 JUL 066F DODGE 2868 US 1 JUL 0720 US 14 JUL 0720 U	OT MA	INTAINED	
0.666	33558	33148	
066F DODGE 2868 US 1 JUL 066B EXPLORER 36 2883 US 14 JUL 0720	10	MAINED	
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C726 EXPLORER 36 2893 US 19 JUL 1720 US 27 JUL 1720	4	NIAINED	
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0720 0V1-12 2901 US 27 JUL 0808 0808 0808 0808 0808 0808 0926 0926 0927 0927 0928 0928 0928 0928 0928 0928 0928 0928		310	
0808A 0808A 0808B	101.6	486	
0804 0808 0848 0848 0828 0828 0828 0828			
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0924 0924 0924 0925 0926 0926 0926 0926 0926 0927 0927 0927 0928 0927 0927 0928 0927 0928 0927 0928 0927 0928 0928 0928 0928 0928 0928 0928 0928		3	
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092C 094C 094C 094C 094C 094C 094C 094C 094C 094C 096A		1038	
0942 09942 09944 09944 09944 09944 09944 09944 09944 09944 09944 09946 0994 09946 0994 09947 0994	-	885	
0944	-	1043	
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0968 050 4 3000 USSR 24 0CT 1028 1028 1028 1028 1028 1028 1028 1028	5	244	
1034 050 4 3000 USS 18 0CT 1028 18 0CT 1028 18 0CT 1028 1028 1028 1028 1038 1038 1038 1038 1038 1038 1038 103		499	
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102A COSMOS 184 3010 USSR 24 OCT 102B COSMOS 189 3021 USSR 24 OCT 108B COSMOS 189 3021 USSR 24 OCT 108B COSMOS 189 3022 USSR 30 OCT 114B ESSA 6 3033 US 10 NOV 114B COSMOS 192 3034 US 10 NOV 114B COSMOS 192 3034 US 10 NOV 115B COSMOS 198 3036 US 10 NOV 115B COSMOS 198 3038 USSR 23 NOV 127A COSMOS 198 3081 USSR 23 NOV 127A COSMOS 198 3081 USSR 23 NOV 127A COSMOS 198 3083 USSR 23 NOV 127A COSMOS 198 3093 USSR 23 NOV 127A COSMOS	1	483	
1088 COSMOS 189 3011 0058 24 0CT 0088 1088 20 0CT 0088 1088 1088 1088 1088 1088 1088 108	81.1	582	
1088 COSMOS 189 3021 USSR 30 OCT 1088 1088 30 OCT 1088 1088 30 OCT 1188 30 OC		100	
1088 CUSRUS 199 3023 USSR 30 0CT 1088 11088 11088 30 0CT 1148 ESSA 6 3035 USSR 30 0CT 1148 ESSA 6 3035 USSR 30 0CT 1148 ESSA 6 3035 USS 10 NOV 1140 1140 1140 1140 1140 1140 1140 114		404	
108H ATS 3 3029 USS 30 0CT 1114 ESSA 6 3034 US 7 NOV 1114 ESSA 6 3035 US 10 NOV 1114 ESSA 6 3035 US 10 NOV 1114 ESSA 6 3035 US 10 NOV 1114 ESSA 6 3047 USSR 23 NOV 1115 ESSA 6 3048 USSR 23 NOV 1115 ESSA 6 3048 USSR 23 NOV 1127 USSR 23 NOV 1127 ESSA 6 3081 USSR 23 NOV 1127 ESSA 6 3093 USSR 23 NOV 1127 ESSA 6 3093 USSR 23 NOV 1127 ESSA 6 3093 USSR 27 DEC 127 DEC 127 ESSA 11 JAN 127		478	
111A ATS 3 3029 US 5 NOV 114B ESSA 6 3035 US 10 NOV 114B ESSA 6 3035 US 10 NOV 114C 114C 114C 114C 115B 116C 116C 116C 116C 116C 116C 116C 116		368	
1128 ESSA 6 3034 US 10 NOV 1148 ESSA 6 3035 US 10 NOV 1140	35	35720	136.470.137.350
1144 ESSA 6 3035 US 10 NOV 1146 ESSA 6 3035 US 10 NOV 1140 US 1140 US 1140 US 1140 US 1140 US 1140 US 1164 US 110 NOV 1164 US 1168 US 110 NOV 1164 US	1		
1148 1146 11145 11146 11146 11146 11158 111	٠,	1410	
114C 114C 114C 116A		2141	
114E	-	1453	
116A COSMOS 192 3047 USSR 23 NOV 115B 23 NOV 123A PLONEER 8 3066 USSR 23 NOV 127A COSMOS 198 3081 USSR 27 DEC 127A COSMOS 198 3081 USSR 27 DEC 201B EXPLORER 36 3093 US 7 JAN 3092 US 11 JAN 3092 US 11 JAN 3092 US 11 JAN 3092	-	1391	
1158 PIONEER 8 3048 USSR 23 NOV 127A CUSMUS 198 3081 USSR 27 DEC LAUNCHES 2018 27 DEC 2018 20018 20028 27 DEC 2018 20028 27 DEC 2018 20028 27 DEC 2018 20028 27 DEC 2018 20028 20028 20028 2002 20028	1	741	
127A COSMOS 198 3081 USSP 27 DEC LAUNCHES 001B 3092 US 7 JAN 002B EXPLORER 36 3093 US 11 JAN 002B 11 JAN		741	
127A CUSMUS 198 3081 USSK 27 DEC LAUNCHES 001B 3092 US 7 JAN 002A EXPLORER 36 3093 US 11 JAN 002B COSE 11 JAN	CENTRIC ORBIT	000	
1018 3092 US 7 JAN BARYCENT 002A EXPLORER 36 3093 US 11 JAN 112.2 05228 US 11 JAN 112.1 12.1	,		
002A EXPLORER 36 3093 US 11 JAN 112.2 0528 US 11 JAN 112.1			
002A EXPLORER 36 3093 US 11 JAN 112-2	NTRIC ORBIT		
3004 US 11 JAN 112-1		1083	136.320
	105.8 1570	1083	
3127 115 11 14N 112-1	-	1078	
3103 USSR 19 JAN 94-2	6	463	

			C TATA					-	-		
NATI DVAL DESIGNAT	11 I ON	NAME	NJMBER	SOURCE	LAUNCH	MINUTES	NATION	KM.	KM.	FRED.(MHZ)	NOTES
963 LA	AUNCHE S	(CONT.D)									
63 01		COSMOS 203	3129	USSR		109.2	74.0	1204	1185		
1963 61	C118		3131	USSR	20 FEB	109.3	74.0	1207	1185		
0 7	24		41.4	2000		106.90	0.08	1142	1027		
63 01	28		3137	SO		106.9	6.68	1142	1027		
10 89	26		3213	Sn	- 1	105-1	80.8	1100	892		
68 01			3214	Sn		108.8	90.1	1322			
23 01		ZOND 4	3134	USSR		CURRENT	ELEME	Ì			
50		80 8	3138	S		CURRENT	ELEMENTS	NOT MAINTA			
500	ı	45 0300 100	2143	2		O CORREN		E			
2 2	J	2007	3176	0		0.20	200	760	477		
000			3 3 3 3	5 2		000		27.0	800		
1	7.0		5773	SI		93.6	50.2	237	367		
9		SUS SUNSUS	3150	as 511		96.5	81.2	119	579		
88			3151	USSR		8.96	81.52	687	534		
3 02		Š	3158	USSR		103.1	656.3	932	882		
8 02		-13	3173	ns		199.4	6.66	9285	579		
30		001-14	3174	O.S		207.7	6.66	9941	545		
58 62			3177	ns		207.9	6.66	8966	534		
58 02			3212	Sn		199 .4	6.66	9278	579		
7		4	3178	USSR	1	SELENDC	NTRIC OR				
90 6		05M0S 220	3229	USSR		98.9	74.0	749	672		
53 04	901		3 2 30	USSK		98.9	0.4	151	170		
3 04	0		3231	USSK		98.0	0.4.0	733	924		
8 04	12A		3200	SO		102.0	0.86	006	18		
3 04			3271	SO	- 1	102.1	98.0	006	818		
0 6	٥	USMUS 226	3282	2000		900.3	100	600	200		
90 04	96		3283	USSR		9996	81.2	683	517		
2	40		3284	3	1	13350		3384	33/28		
200	000		2000	2 :		0.0001	• • •	00000	0000		
200	200		2000	2	- 1	1330.3	200	23902	22717		
200	J		8862	500		1330.8	4	34044	33716		
58 05	POF		3289	ns		1342.2	2.4	34112	33742		
8 05	90		3290	ns		1345.3	2.4	34260	33721		
3 05	HO		3291	ns		1348.7	2.3	34345	33772		
8 05			3292	Sn		CURRENT	EL EMENTS	NOT MAINT	AINED		
59 05	55A E	XPLORER 38	3307	Sn		224.2	120.8	5873	5827		
59 05	558		3315	Sn		156.6	120.5	5931	266		
58 05	250		3848	Sn	1	224.1	120.8	2865	5823		
50	050		14841	2:		1 300.0	120.00	2920	0 0 0 0		
50	L	000	3000	200	- 1	SOURCE STATE	CL CMEN 3	NI VE ION	AINED		
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1	0,4		2 340	31		117.3	20.7	2430	688		
200	o u		145	200		117.6	80.6	2478	674		
200	14		0011		- 1	17.4	80.6	2438	669		
58 06	999		3391	ns		117.5	80.7	2462	682		
58 06	19		3392	SO		117.5	80.7	2435	404		
99 69	69		3393	ns	1	117.3	90.08	2436	688		
58 06	94 E	SSA 7	3345	ns		114.9	102.0	1475	1432		
53 26	98		3346	SII	- 1	114.8	101.0	1468	1429		
99 69	269	3	3416	SO		113.7	101.6	1489	1305		
29 06	060		3417	so		116.1	0501	2061	1439		
200	100		97.65	200			0.201	1 400	1419		
500	100		6000	200		7	1001	1405	1410		
000		AFC POWPO	747.5	assi		2.90	26.0	603	579		
53 67			3349	USSR		96.2	56.0	596 558	558		
3 08		4	3428	SII	- 1	CURRENT	FLEMENTS	NOT MAINT	AINED		
59 08		RS 28	3429	ns		CURRENT	EL EMENTS	NOT MAINT	AINED		
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CONTROL CONT	DESIGNATION	NAME	NUMBER	SOURCE	LAUNCH	MINUTES	NATION	K.W.	KM.	FREG . (MHZ)	NOTE
Colored Section Colored Se	-T	S									
COURT COUR	000	9	441	SO OS	1	CURRE	EMENT	TY	00		
Colored Colo	300	OSMOS 24	U LO	USSR		112.0	62.3	119	-01		
0928 CISKINS 250 0952 USSP 0952 USSP 0954 0956 0956 0956 0957 0957 0957 0957 0957 0957 0957 0957	7		3510	1050	- 1	101.3	98	847	800		>
100 A 100	00	MOS 2	3522	USSR			73.9	388	380		
10.00 0.00	000	MOS 25	3527	USSR	1	112.3	62.3	431	422 557		:
100 100		NEER	3533	SO		HELI	RIC OR	17 670	35.0		
100A COSMOS 256 3576 USSP 30 NOV 109-3 74-0 1225 11104 100A COSMOS 256 3576 USSP 30 NOV 109-3 74-0 1225 11104 110B COSMOS 256 3576 USSP 30 NOV 109-3 74-0 1225 11104 110B COSMOS 256 3576 USSP 30 NOV 109-3 74-0 1225 11104 110B COSMOS 272 3613 USSP 30 NOV 109-3 74-0 1225 11104 110B COSMOS 250 USSP USSP	٦.	4	3547	Sn	- 1		32.8	503	328		
110		\$ 25	3576	USSR			74.0	1225	1174		
120 120	Γ.	X	3597	Sn			34.9	773	764		
112C			3598	s s			80.0	1474	1386		
1144 ESSA 3664 US 15 US 16 US 16 US 16 US 16 US 16 US 16 US US US US US US US U			3617	SO			80.1	1452	1377		
1144 ESSA 8 3515 US 15 DEC 1114 1116	77		3840	SO	- 1		80.5	1512	1979		
1164 INTELSAT 3 F-2 3610 US 15 DEC 115-1 101-5	٠	SSA	3615	SO			101.4	1465	1416		
1145 1145	7†		3010	S	- 1		00101	1472	1950		
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013A 3691 05 9 FEB 1435.9 1.0 35803 3 013B MARTNER 6 3769 US 25 FEB HELIOCENTRIC ORBIT 014B ESSA 9 3764 US 25 FEB HELIOCENTRIC ORBIT 016B 3760 US 25 FEB HELIOCENTRIC ORBIT 018B 3770 US 26 FEB 115.1 1507 018B 3770 US 26 FEB 115.1 1507 018B USSR 27 US 3 MAR HELIOCENTRIC ORBIT 434 018B USSR 3 MAR HELIOCENTRIC ORBIT 4295 021A COSMOS 269 3775 USSR 5 MAR 93.1 74.1 4295 021A COSMOS 272 3818 USSR 5 MAR 93.1 74.1 433 024A COSMOS 272 3818 USSR 17 MAR 109.2 74.1 433 025A METEOR 3825 US 18 MAR 152.2		DA C	2000	1 30	- 1	1430.1	24.0	2	337.00		-
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-			087	OBJECTS IN	ORBIT					
NATIONAL DESIGNATION	NAME	CAT ALOS NJMBER	SOURCE	LAUNCH	PERIOD MINUTES	I NCLI-	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREG.(MHZ)	NOTES
1959 LAUNCHE	ES (CONT'D)									
1969 037B	EGR 5 13	3891	Sn	14 APR	107.2	9.66		1072		
		3943	os.		HEL TOCE	NTRIC ORB	11			
	LM/DESCENT LM/ASCENT	3948	s so		HEL TOCE	NTRIC ORB	11			
	INTEL SAT 3 F-4	3947	1150	- 1	1435.9	9	35810	35755		
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	,	3951	Sn		3115.5	20.7	122260	6307		
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		3956	Sn		CURRENT			NT A INED		
	9 090	3986	91	1	67.2	0.18	858	300		
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		4040	SO		20101	48.6	400	785	A STATE OF THE PARTY OF THE PAR	
	INTELSAT 3 F-5	4051	1150		132.8	30.3	4223	264		
		4053	Sn	- 1	141.4	30.3	1961	265		
	9 080	4065	Sn		94 • 3	32.9	508	464		
	PAC 1	4066	SO		9006	32.9		301	36 484 484 481	•
	1	4068	SO		1434.9	3.6	35752	35732	136.470.137.330	
		1000	200		679.8	17.5		1395		
	COSMOS 292	4070	USSP		8.06	74.0		743		
	50.5	4071	USSR		2.66	74.0	759	733		
		4084	USSB	- 1	100.0	74.0	777	742		
		4256	ς : :		103.4	1000	936	906		
		4257	25	- 1	103.4		950	906		
		4237	o S		103.4	10.0	938	906		
		4247	SO		103.4	70.0	938	906		
		4295	SN		103.4	20.0	937	906		
		4168	sn:		103.4	100	937	906		
		4132	35		103.3	70.0	933	901		
			SO		SEE NO.	E 14*				144
	METEOR	4119	USSR	1	97.4	81.5		615		
	AOF SOMEON	4120	USSR		96.60	74.0		741		
	100	4139	USSR	1	9.66	74.0		737		
	GRS-A/AZUR	4221	FRG	NON 8	120.3	102.6	3004	387		
		4242	FRG		114.8	102.7	1	381		
		4243	FRG		_	103.0		380		
		4261	500			103.6		382		
		4224	2 2 2			FLEMENTS	Z	NTAINED		
	SKYNET A	4250	OK OK		1436.0			35749		
		4251	SO		CURRENT	ELEMENTS	Z	NTAINED		
	CUS #US 312	4255	20001		-	74.0	1	1144		
	COSMOS 315	4273	USSR			74.0	467	453		
		4274	USSR	- 1			465	4		
	ES									
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1970 1974	070	I MOSHO	15.54	2000	- 1	101.2	98.7	869	771		1
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175 175	2040	NATO 1	4 353	NATO	- 1	1436.1	3.0	35823	35750		
1970 0254 1970 0254 1970 0255 1970	1970		4354	ns		6.26.3	25.1	35449	290		
17.0 17.0	1970		5975	US US		638.4	25.3	35993	367		
1950 1954 1955	1973	33	4 360	USSE		0.46	0.47	404	404		
1970 0223 TDPO 1	1970	NIMBUS 4	4 361	105 K	- 1	107.1	2.00	1103	1001	36	-
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970 0326 970 0326 970 0336 970 03	970		4370	USSR		99.8	74.0	53	737		
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970 0356 COSMOS 336 4360 USSR 25 APR 115.4 74.0 1554 070 0356 COSMOS 337 4384 USSR 25 APR 115.4 74.0 1555 070 0356 COSMOS 343 4384 USSR 25 APR 115.6 74.0 1471 070 0356 COSMOS 343 4384 USSR 25 APR 115.6 74.0 1471 070 0356 COSMOS 343 4384 USSR 25 APR 113.5 74.0 1471 070 0356 COSMOS 343 4384 USSR 25 APR 113.5 74.0 1471 070 0356 COSMOS 343 4384 USSR 25 APR 113.5 74.0 1471 070 0356 COSMOS 343 4384 USSR 25 APR 113.5 74.0 1471 070 0356 COSMOS 343 4384 USSR 25 APR 113.5 74.0 1471 070 0356 COSMOS 343 4384 USSR 25 APR 113.5 74.0 1471 070 0356 COSMOS 343 4384 USSR 25 APR 113.5 74.0 1471 070 0356 COSMOS 343 4384 USSR 25 APR 113.5 74.0 1471 070 0356 COSMOS 343 4384 USSR 25 APR 113.5 74.0 1471 070 0356 COSMOS 343 4384 USSR 25 APR 113.5 74.0 1471 070 0356 COSMOS 343 4384 USSR 28 APR 96.1 147.0 1471 070 0356 COSMOS 343 4384 USSR 28 APR 96.1 147.0 1471 070 0356 COSMOS 343 4384 USSR 28 APR 97.0 0356 COSMOS 36.1 1471 070 0356 COSMOS 37.1 1471 070 0356 COSMOS 36.1 1471 070 0356 COSMOS	240		4 302	PRC		112.5	68.4	61	436		
972 0366 COSMOS 336 4383 USSR 25 APR 1115.4 74.0 1487 97.0 036C COSMOS 336 4387 USSR 25 APR 1115.4 74.0 1471 97.0 036C COSMOS 336 4387 USSR 25 APR 1115.8 74.0 1471 97.0 036C COSMOS 340 4387 USSR 25 APR 1113.5 74.0 1471 97.0 036C COSMOS 340 4389 USSR 25 APR 1113.5 74.0 1471 97.0 036C COSMOS 340 4389 USSR 25 APR 1113.5 74.0 1471 97.0 036C COSMOS 342 43910 USSR 25 APR 1113.5 74.0 1471 97.0 036C COSMOS 342 43910 USSR 25 APR 1113.5 74.0 1471 97.0 036C COSMOS 342 43910 USSR 25 APR 1113.5 74.0 1471 97.0 036C COSMOS 343 43910 USSR 25 APR 1113.5 74.0 1471 97.0 036C COSMOS 343 43910 USSR 25 APR 1113.5 74.0 1471 97.0 036C COSMOS 343 43910 USSR 25 APR 1113.5 74.0 1471 97.0 036C COSMOS 342 43910 USSR 25 APR 97.0 036C COSMOS 343 43910 USSR 25 APR 1113.5 74.0 1471 97.0 036C COSMOS 342 43910 USSR 25 APR 97.0 036C COSMOS 343 43910 USSR 25 APR 97.0 036C COSMOS 367 47.0 036C COSMOS 37.0 036C COSMOS 367 47.0 036C COSMOS 367 47.0 036C COSMOS 37.0 036C COSMOS	020		4 4 00	PRC		110.4	68.5	7.1	425		
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970 036C COSMOS 338	616		4384	USSR		116.2	74.0	40	1470		
970 036F COSMOS 340 4387 USSR 25 APR 113.9 74.0 1471 970 036F COSMOS 341 4388 USSR 25 APR 113.9 74.0 1471 970 036F COSMOS 342 4389 USSR 25 APR 113.9 74.0 1470 970 036H COSMOS 342 4394 USSR 25 APR 116.6 74.0 1470 970 036H COSMOS 342 4394 USSR 25 APR 116.6 74.0 1470 970 0374 METEOR 4391 USSR 28 APR 97.9 81.2 775 970 0478 METEOR 4418 USSR 28 APR 97.9 81.2 775 970 0478 METEOR 4418 USSR 28 APR 97.9 81.2 775 970 0478 METEOR 4419 USSR 23 JUN CURRENT ELEMENTS NOT MAIN 970 0558 APR 97.0 0558 APR 97.0 0578 APR	970		4385	USSR		115.8	24.0	22	1469		
972 036F COSMOS 341 4368 USSR 25 APR 113 9 74 0 1470 1470 036F COSMOS 342 4398 USSR 25 APR 113 9 74 0 1470 1470 036F COSMOS 342 4399 USSR 25 APR 114 2 74 0 1470 1470 0370 0378 A 339 USSR 26 APR 114 2 74 0 1470 0370 0378 A 339 USSR 28 APR 96 1 4 14 0 14 0 14 0 14 0 14 0 14 0 14 0	100		4 187	455H		114.6	74.0	1.2	1409		
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970 0468 METEOR	240		405	2000		1.80	2018		568		
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970 055A INTELSAT 3 F-8 4486 US 23 JUL CURRENT ELEMENTS NOT MAINTAN 481 US 27 JUL CURRENT ELEMENTS NOT MAINTAN 481 US 28 JUL CURENT ELEMENTS NOT MAINTAN 481 US 28 JUL CURRENT ELEMENTS NOT MAINT	970	METEOR	4419	USSR		102.0	20.10	0000	813		
970 055B WILLIAM 4486 US 23 JUL CURRENT ELEMENTS NOT MAINTA 971 065B SKYNET B 4493 US 20 AUG CURRENT ELEMENTS NOT MAINTA 972 064B SKYNET B 4493 US 20 AUG 04.0 74.0 485 972 064B HASS USSR 20 AUG 06.9 90.1 1218 972 067B USSR 27 AUG 106.9 90.1 1218 972 067C USSR 27 AUG 106.9 90.1 1137 973 067C USSR 27 AUG 106.9 90.1 1137 973 067C USSR 12 DC1 90.1 1137 1014 973 068A USSR 12 DC1 90.1 1014 90.1 10	240	CAT 2 E-	244	1150		CURRENT	FL EMENTS	MAI	~		
977 562A SKYNET B 4493 UK 19 AUG CURRENT ELEMENTS NOT MAINTAIN MAINTAIN COSMUS 358 4493 UK 20 AUG 94.0 74.0 465 323 4497 USSR 20 AUG 94.0 74.0 465 323 4497 USSR 20 AUG 94.0 74.0 465 370 0674 065.9 90.1 1219 970 0677 99.0 1219 970 0677 99.0 1219 970 0677 99.0 1219 970 0677 99.0 1219 970 0677 99.0 1219 970 0677 99.0 1219 970 0677 99.0 12137 970 0678 99.0 12137 970 0678 99.0 12137 970 0678 99.0 12137 970 0678 99.0 1207 99.8 75.4 970 0757 970 0838 970 0858 970 0	020	0	4486	50		CURRENT	EL EMENTS	MAI	4		5
970 064B COSMUS 358 4497 USSR 20 AUG 9449 74,0 485 970 064B NNSS 0-19 4507 USSR 27 AUG 106.9 90.1 1219 970 067A NNSS 0-19 4507 USSR 27 AUG 106.9 90.1 1219 970 067B HANSS 0-19 4515 USSR 27 AUG 106.9 90.1 1219 970 067C 5447 USSR 27 AUG 106.1 90.1 1219 970 067C 5447 USSR 27 AUG 106.1 90.1 1219 970 067E 547 USSR 27 AUG 106.1 90.1 137 970 067E 547 USSR 1 SEP 101.1 98.9 873 970 067E 4513 USSR 1 SEP 101.1 98.9 873 970 078A 4513 USSR 1 SEP 101.1 98.9 873 970 083B METEOR 4584 USSR 1 SEP 101.1 </td <td>07.5</td> <td></td> <td>4 493</td> <td>Š</td> <td></td> <td>CURRENT</td> <td>ELEMENTS</td> <td>MAI</td> <td>4</td> <td></td> <td></td>	07.5		4 493	Š		CURRENT	ELEMENTS	MAI	4		
970 0649 NNSS 0-19	020	- 1	4497	USSB	- 1	0.40	74.0	523	ı		
970 067A NNSS 0-19	970		4498	USSR		0.46	74.0	485	456		
970 0678 971 0676 972 0676 973 0676 973 0676 973 0676 974 0687 973 0677 973 0677 973 0678 974 0687 974 0687 975 0678 975 0678 975 0678 975 0678 975 0678 975 0678 975 0678 975 0678 975 0688	970	S 0-1	4 507	ns		106.9	90.1	1218	926		
972 067C 976 977 978 978 978 978 978 978 978 978 978	970		4515	S		90 901	1.06	1219	900		
970 C673 970 C673 970 C675 971 C697E 971 C697E 972 C697E 973 C697E 973 C697E 973 C697E 973 C697E 974 C697E 975 C697E 977 C697E	973		5036	s c		*****	•	166	040		
973 C67E 973 C67E 974 C69A 975 C70A 975	016		5447	200	- 1	0.601		1137	190		1
970 0704 4512 05 105 1 SEP 101:1 98.9 873 970 0705 970 0705 4513 05 1 SEP 101:1 98.9 873 970 0706 4513 05 4513 05 1 SEP 101:1 98.9 873 970 0706 4513 05 4574 058 1 SEP 101:1 98.9 1014 970 0836 COSMOS 371 4564 058 4579 058 1 SEP 1 CT 99.8 754 970 0836 METEOR 4587 15 0CT 97.3 81.2 639 970 0856 4584 058 15 0CT 97.3 81.2 723 871 0856 4589 05 1058 15 0CT 74.0 806 970 0856 4589 05 16 0CT 74.0 806	616		2/50	5		LNEGGIO	FI FATATS	TAMT	4		
970 756 USSR 3 SEP 101-1 98-9 873 970 754 USSR 12 CT 104-5 65-2 1014 970 633A CCSMOS 371 4579 USSR 12 CT 99-7 75-7 970 683B METEOR 4579 USSR 15 CT 99-7 75-7 970 685A METEOR 4584 USSR 15 CT 97-3 81-2 724 970 685C 4584 USSR 15 CT 97-3 81-2 723 970 685C 4584 USSR 16 CT 97-3 81-2 723 970 685A 689 USSR 16 CT 100-6 74-0 806	275		4510	511	- 1	10101	98.8	871			,
972 CR9A COSMOS 367	070		4513	SN		101.1	6.86	873	160		
977 C83A COSMOS 371 4578 USSR 12 DCT 99.8 73.9 754 970 6838 74.0 757 970 6838 8 12 DCT 99.7 74.0 757 970 6838 970 685A METEOR 4584 USSR 15 DCT 97.3 81.2 726 977 7856 970 685C 4584 USSR 15 DCT 97.3 81.2 726 977 685C 4588 USSR 15 DCT 97.3 81.2 726 977 685C 4588 USSR 16 DCT 100.7 74.0 806 977 636	973	10	1564	USSR		104.5	65.2	1014	931		
970 6838 METEOR 4579 USSR 12 OCT 99.7 74.0 757 757 757 757 757 757 757 757 757 75	973	40	4578	USSR		8.66	73.9	154	149		
970 085A METEOR 4583 USSR 15 UCI 97.4 81.2 728 970 085C 6330 USSR 15 UCI 97.3 R1.2 723 970 085C 6330 USSR 15 UCI 97.3 R1.2 723 970 085C 6330 USSR 16 UCI 100.7 74.0 805 970 035R 16 UCI 100.6 74.0 806	016		4579	USSP		1.66	0.4.0	127	137		
977 J858 970 J855 970 J855 972 J865 972 J865 973 J856 973 J856	273	METEOR	4063	2000	- 1	07.0	2010	726	246		
970 0864 COSMOS 372 6589 USSR 16 OCT 100.6 74.0 805	200		400	2550		97.3	81.2	723	546		
970 CBEB 4589 USSR 16 OCT 100.6 74.0 806		CDSMDS 372	4 588	USSB		100.7	74.0	808	783		- 1
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INTER-										
NATIONAL DESIGNATION	NAME	CAT ALOG	SOURCE	LAUNCH	PERIOD	INCLI-	APOGEE KM.	PERIGEE KM.	FREG . (MHZ)	NOTES
1970 LAUNCHE	HES (CONT.D)									
O		5358	USSR	- 1	100.9	4	811	800		
970	COSMOS 373	4590	USSR		93.8	65.0	486	438		
970	2	***	USSR		SEE NOT	7		040		16#
1970 C91A	COSMOS 375	4558	USSR	30 OCT	111.7	62.8	2045	572		:
970	94.50	4630	SO		CURRENT	EMENT	M	4		
0		4632	Sn		CURRENT	FLEMENTS		NTAINED		
0	!	4 722	Sn		91.6	83.1	359	350		
o -	COSMOS 379	4 760	USSE		189	27.00	2688	174		
-	20	4784	4550		104.7	74.0	1001	964		
• -		4840	1888		104.4	74.0	166	952		
• •		5225	USSR	- 1	104.6	74.0	200	962		
-		8764	USSR		104.5	74.0	466	926		
973 1		9206	USSP		104.7	74.0	1004	396		
-	COSMOS 382	4 786	USSR		171.0	55.8	5187	2466		
-		4 7 89	USSR		158.8	51.5	5085	1586		
-		4 790	USSR	- 1	159.1	51.5	5085	1611		
-		5316	USSD		164.3	26.2	4 264	2854		
	NOAA I	4 704	SO		9.4	050	1475	1420		
020		8828	011		116.5	8 101	1540	1508		
•-	EXPLORER 42	4797	n s		0.46	3.0	505	478		
970		4 798	ns		CURRENT	ELEMENTS	NOT MAIN	TAINED		
970 1	COS MOS 385	4 799	USSR		104.7	74.0	985	978		
-		\$ 800	USSR		104.6	74.0	983	970		
-	PEOLE	4 801	FRANCE		9.96	15.0	169	495		
		4 802	FRANCE		98.5	0.0	543	631		
•		0184	FOANCE	i i	05.8	14.0	424	475		
•		5264	FRANCE		95.6	15.0	642	477		
-	COSMOS 387	4.806	USSR	1	94.6	13.9	504	497		
-	,	1807	USSR		04.0	0.4	505	485		
-	COSMOS 309	4814	USSB	- 1	61.6	1.18	726	208		
•							ì			
1971 LAUNC	HE S									
0		4924	ns	CNKN	275.6	18.0	14918	380		184
0		4 925	Sn	UNKN	279.1	19.8	15306	228		181
00		4926	SO	Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z	309.2	8.6	17 28 3	25.250		
0	METEOR	4840	assii	NAL OC	4.70	81.2	648	627		101
0		4 850	USSR	20 JAN	9.46	81.2	729	561		
9	INTEL SAT A F-2	4881	1150	26 JAN	1436.0	0.0	35793	35778		
00	COLVE	2882	242	ZO JAN	4.45	28.1	01000	36760		
90		4963	50	2	CURRENT	ELEMENTS	NOT MATH	TAINED		
00		3986	SO	3 FEB	575.9	26.0	31967	1133		
J	COSMOS 394	4922	USSR	9 FEB	96.4	65.8	909	573		
0		4923	USSR	9 FEB	96.2	65.8	599	557		
90	TANCET	2000	NA OA	א הבם	1000	9.00	1103	200		
10		5126	MADAL	16 FFB	104.7	29.6	200	970		
0		5419	JAPAN	16 FEB	100.4	30.4	1028	526		
0		4953	ns	17 FEB	100.0	98.5	832	166		
0		4954	SO	17 FEB	100.8	4.86	833	769		
0		4957	SO	17 FEB	100.0	6,860	228	100		
1971 012F		4 963	SO	17 FEB	100.6	98.5	821	762		
9	COSMOS 395	4955	USSB	17 FEB	8.46	74.0	521	200		-
0		4956	USSR	17 FEB	94.8	0.4	524	496		
971	COS MOS 397	4964	USSK	45 FEB	113.4	000	9022	200		
				-16-						

1971 C248 1971 C218 1971 0158 1971 0158 1971 0208 1971 0218 1971 0218 1971 0218 1971 0248 1971 0248 1971 0248		CATALOS NJMBER S 50053 S 50053	USSR USSR USSR USSR USSR USSR USSR USSR	LAUNCH 26 FEB 26 FEB 26 FEB 13 MAR 18 MAR 21 MAR 21 MAR 21 MAR 21 MAR 21 MAR	MINUTES NI SEE NOTE	NCL!	APOGEE KM.	PER I GEE KM.	TRANSMITTING FREG.(MHZ)	NOTE
7 900000000 00000	COSMOS 40	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	USSR USSR USSR USSR USSR CANSR USSR CUSSR		SEE NOTI					
	MOS 40 MOS 40 MOS 40	4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	USSR USSR USSR USSR USSR USSR USSR USSR	MANA MARRA PARA PARA PARA PARA PARA PARA PA	195.4	•				
	MOS 40	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	USSR USSR CANADA USSR USSR USSR USSR FRANCE FRANCE FRANCE	MAN	1.00	51.6	9339	218		161
	MOS 40	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	USSR USSR USSR USSR USSR USSR USSR FRANCE FRANCE FRANCE FRANCE	M M M M M M M M M M M M M M M M M M M	77	8.59	1188	253		
	MOS 40 MOS 40 RNE SOL	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	USSR USSR USSR USSR USSR USSR FRANCE FRANCE FRANCE	MAMA	104.9	65.8	1005	903		
	MOS 40 MOS 40 RNESOL	0.000 0.000	USSR USSR USSR USSR USSR USSR FRANCE FRANCE FRANCE	MAR	104.8	65.8	992	985		
	S 2 MINDS 40	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CANADA USSR USSR USSR USSR USSR FRANCE FRANCE FRANCE USSR	MAR	105.0 CURRENT	65.8 LEMENT	NOT MAINTA	TAINED		
	MOS 40	4 000000000000000000000000000000000000	USSR USSR USSR USSR USSR FRANCE FRANCE FRANCE FRANCE	APO	CURRENT	ELEMENTS	NOT MATE	TATNED	***	
	MOS 40 MOS 40	5 1 1 2 2 4 1 2 2 2 4 1 2 2 2 4 1 2 2 2 4 1 2 2 2 2	USSR USSR USSR USSR FRANCE FRANCE FRANCE FRANCE	- 1	113.6	88.1	1427	1359	136.590.137.950	
	MOS 40	0 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	USSR USSR USSR USSR FRANCE FRANCE FRANCE FRANCE USSR				•	926	01.1	õ
	MOS 40 MOS 40 RNE SOL	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	USSR USSR USSR FRANCE FRANCE FRANCE USSR	APR	113.5	88.1		1362		
	RNE SOL	5117 5118 5128 51328 5140 5144 5143	USSR USSR USSR FRANCE FRANCE FRANCE USSR USSR		104.9	6.49	_	646		
	TOURNESOL	5 1 1 2 8 5 1 1 2 8 5 1 1 2 8 5 1 2 8 5 1 2 8 5 1 3 5	USSR USSR FRANCE FRANCE USSR USSR		98.2	81.2		671		
	TOURNESOL	5 1 2 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	FRANCE FRANCE USSR USSR		98.3	2018		114		
		5136 5140 5174 5174 5175	FRANCE FRANCE USSR USSR		95.4	46.3		445		
1		5140 5143 5174	FRANCE USSR USSR USSR		95.0	46.3		431		
		5142 5174 5175	USSR		92.3	46.3		364		
1	METEOR	5174	USSR	1	- 20	2010		2000		
	COSMOS A07	5175			6.001	74.0		789		
- 1	- 1)	USSR		100.8	74.0		773		
		5330	USSR		101.2	74.0		806		
- 1		5301	USSR		101.3	74.0		806	And the second s	
		5778	USSR		10101	74.0		802		
- 1		9569	USSB	- 1	101	74.0		797		
	COSMCS 409	5180	USSR	28 APR	109.3	74.0	1213	1178		
- 1		4000	115		CURRENT	FLEMENTS	NOT MA			
		5205	SO		CURRENT	ELENENTS	AM TON	INTAINED		
- 1		5210	USSR		113.8	0.47		1317		
		1125	2000		115.7	74.0		1475		
- 1		6213	USSB	- 1	115.1	74.0	1	1428		
	COSMOS 4:5	5214	USSR		115.4	74.0		1452		
		5215	USSR	- 1	114.4	0.4.		200		-
		5210	1000		114.8	14.0		1401		
		5218	USSR		116.8	74.0		1490		-
		5234	USSR		AREDCEN	TRIC ORBI				
	9	5238	USSR		105.0	74.0	1003	986		
	MARS 3	5252	USSR		AREOCEN	TRIC ORBI	_			
	COSMOS 425	5253	USSR		94.6	74.0	514	487		
	O STATE	5254	USA		AREDCEN	IRIC OR	1	-		
		5267	SO		HEL IOCE	NTRIC ORBI	11			
971 052A	COSMOS 426	5281	USSR		4.801	0.47	1931	385		
		2020	11550	- 1	97.0	73.9		352		
		5285	Sn		95.6	90.1		533		
_	EXPLORER 44	5317	SO		94.5	21.0		423		
	METEOR	5328	USSR		97.3	81.2		556		
		5329	ns		93.2	74.9		430		
	SUBSATELLITE	5377	ns		SELENDO	ENTRIC OR	118			
- 1	1	5367	USSB	d	7	S) I	40065			
1971 0640	10-170	5368	USSR	28 JUL	101.9	65.0	39 220	790		

1971 LAUNCHE S (CONT'D) 1971 D674 US 1971 D675 US 1971 D675 US 1971 D675 US 1971 D675 US US 1971 D675 US US 1971 D677 US US US US US US US			NAT ION K	KM. KM.	FREG. (MHZ)	NOTES
0676 0677 0677 0677 0677 0677 0677 0677						
0674 0674 0677 0677 0677 0677 0677 0677	7 AUG	101.9 87.6	87.6	911 791		
0677 0677 0677 0677 0677 0678 0713 0714 0714 0715 0715 0716 0724 0725 0726 0726 0726 0727 0726 0727 0727 0727 0728 0727 0728 0729 0730	1		87.6			
067M 067M 067M 067M 067M 067M 067M 071A 071A 071C 071C 071C 071C 071C 071C 071C 071C	- 1-1		97.6			
0077N 0071B	-		87.6			
0657P 0713B 07713B 07713B 07714B 07715B 0771	- ~		9			
0013 COSMOS 434 5407 0713 COSMOS 434 5440 0738 COSMOS 436 5449 0738 COSMOS 437 5465 0808 SHINSEI 5488 0808 LUNA 19 5498 0808 COSMOS 445 5549 0808 COSMOS 445 5549 0808 COSMOS 445 5549 0808 COSMOS 445 5549 0808 COSMOS 446 55549 0910 COSMOS 446 65 5549 0910 COSMO	1			168		
0713 0713 0714 0738 0738 0738 0738 0754 0755 0755 0808	12		51.5	542		
071C 071C 074A 075A 075A 075B 080B 100B	16		50.1			
0.74A COSMOS 436 5449 0.75A COSMOS 437 5466 0.80B LUNA 19 5488 0.80B LUNA 19 5492 0.80B COSMOS 445 5492 0.80B COSMOS 445 5549 0.80B COSMOS 445 5549 0.80B COSMOS 445 5550 0.80B COSMOS 445 5553 0.80B COSMOS 445 5553 0.80B COSMOS 445 5553 0.80B COSMOS 445 5558 0.80B COSMOS 445 5558 0.80B COSMOS 445 5558 0.80B COSMOS 447 5558 0.80B COSMOS 450 5558 0.80B COSMOS 450 5558 0.80B COSMOS 450 5558 0.80B COSMOS 450 5558 0.90B	16		20.05			
0755 COSMOS 436 5461 0756 COSMOS 437 5467 0756 COSMOS 437 5467 0808 COSMOS 445 5490 0806 COSMOS 445 5549 0866 COSMOS 446 5549 0866 COSMOS 446 5551 0867 COSMOS 446 5551 0867 COSMOS 446 5551 0867 COSMOS 446 5551 0874 COSMOS 446 5551 0874 COSMOS 450 5551 0875 COSMOS 450 5551 0875 COSMOS 450 5551 0876 COSMOS 450 5551 0877 COSMOS 450 5551 0878 COSMOS 450 5551 0978 COSMOS 450 5551	90		CENTOTO DOBIT			
0758 COSMOS 437 5466 0804 SHINSEI 5488 0824 LUNA 19 5488 0826 COSMOS 445 5549 0865 COSMOS 445 5554 0866 COSMOS 445 5553 0866 COSMOS 446 5553 0866 COSMOS 446 5553 0867 COSMOS 446 5553 0867 COSMOS 446 5553 0867 COSMOS 446 5553 0874 COSMOS 446 5553 0878 COSMOS 446 5553 0878 COSMOS 451 5558 0936 COSMOS 451 5558 0937 COSMOS 451 5558 0938 COSMOS 451 5558 0938 COSMOS 451 5558 0948 COSMOS 451 5558 0956 COSMOS 451 5558 0957 COSMOS 451 5558 0958 COSMOS 451 5558	"		2	•		
075A CDSMDS 437 5466 080A SHINSEI 5486 080B LUNA 19 5498 082C CDSMDS 445 5490 082C CDSMDS 445 5549 086B CDSMDS 445 5549 086C CDSMDS 446 5554 086C CDSMDS 451 5554 087A 5554	*		74.0	4		
0808 SHINSEI 5488 0808 LUNA 19 5488 0808 LUNA 19 5498 0808 COSMOS 444 5549 0866 COSMOS 445 5549 0866 COSMOS 446 5559 0866 COSMOS 446 5559 0867 COSMOS 451 5554 0878 COSMOS 451 5554 0878 COSMOS 451 5554 0878 COSMOS 451 5554 0936 COSMOS 451 5554 0937 COSMOS 451 5554 0938 COSMOS 451 5554 0938 COSMOS 451 5554 0938 COSMOS 451 5554 0938 COSMOS 451 5558 0948 COSMOS 451 5558 0958 COSMOS 451 5558	25		0.41	521 496		
080B 0822A 083B COSMOS 444 086B COSMOS 445 086C COSMOS 445 086C COSMOS 446 0866C COSMOS 447 0866C COSMOS 447 0866C COSMOS 446 0866C COSMOS 446 0866C COSMOS 446 0866C COSMOS 447 0866C 08864 0878 0878 0878 0878 0878 0878 0878 087	280		0.00	r Œ		
082A LUNA 19 5488 083B TETR 4 5490 083B COSMOS 445 5549 086C COSMOS 445 5550 086C COSMOS 447 5550 086C COSMOS 447 5550 086C COSMOS 450 5553 086C COSMOS 450 5553 086C COSMOS 450 5553 086C COSMOS 450 5553 087A 5550 087A 5550 087A 5550 087A 5550 087A 650 5551 097A 650 5551	28		32.0	00		
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0860 COSMOS 447 5550 0866 COSMOS 448 5550 0866 COSMOS 450 5553 0867 COSMOS 451 5553 0874 650 5557 0874 650 5557 0874 650 5557 0875 650 650 650 650 650 650 650 650 650 65	13					
0866 COSMOS 448 5551 0864 COSMOS 450 5553 0864 COSMOS 451 5554 0874 0874 0934 08978 0936 0898 0898 0998 CEXPLORER 45 5589 0998 COSMOS 461 5589 1038 COSMOS 461 55675 11098 ARIEL 4 5675 1110	13					
0865 COSMOS 450 5553 0864 COSMOS 451 5554 0874 0878 0910 5556 0910 5556 0910 5556 0932 5556 0932 5560 0932 5576 0958 5576 0958 5576 0958 1096 EXPLORER 45 5589 0968 COSMOS 461 5589 1038 COSMOS 461 5628 1109 ARIEL 4 5675 1110 55679	13					
0864 COSMOS 451 5554 0874 0874 0878 5555 0878 5555 0910 5556 0910 5556 0924 5556 0936 EXPLORER 45 5589 0968 COSMOS 461 5589 1034 COSMOS 461 55614 1058 ARIEL 4 55675 1100 55675	13					i
0874 0878 0878 0818 0818 0818 0818 0823 0932 0932 0932 0932 0938 0958 0968 0968 0968 0968 0988 0988 0988 098	13					
0878 089A 089A 089A 089A 089A 089A 089A 089	11					k
0894 0894 0894 0934 0936 0936 0936 0956 0956 0968 0968 0968 0968 0998 0998 0998 099	14					13
09310 DROSPERO 5580 0933 0934 0936 5581 0936 EXPLORER 45 5588 0996 COSMOS 457 5618 1038 COSMOS 460 5629 11098 ARIEL 4 5675 11109 5680	17					Ю
0933 0933 0934 0936 0936 0958 0958 0968 0968 00998 009	280					R
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15 LAUNCHES (CPT - 1) 19 19 19 19 19 19 19	NATIONAL		CATALOG			PFRIOD	- L TON	APOGEE	PERIGEE	TRANSMITTING	
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911 1146 911 1156 911	971 L	(ı
911 1150	7	217	9704	USSE		101.1	74.0	817	108		
1110.0 GENERAL 4 F - 3 5700 IITSO DEC 1446-1 3 3 1 110.0 GENERAL 4 F - 3 5700 IITSO DEC 1446-1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		MUL NII	5713	USSR		4.7.29	65.1	39190			
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937 1190	1	ORE OF 1	6729	USSB	- 1	141	73.9	2436	300		
991 1206 METEOR 5739 USSR 29 DEC 102.2 81.2 81.2 81.2 81.2 81.2 81.2 81.2 8			5730	USSR		113.9	9.82	2417	399		
971 1206 METEOR 5731 USSR 29 DEC 102.6 R1.2 R1.2 R1.2 R1.2 R1.2 R1.2 R1.2 R1.2	' [6190	USSR		93.7	74.0	480	440		
972 LAUNCHES 971 LESCE 972 LAUNCHES 972 LAUNCHES 972 LAUNCHES 972 LAUNCHES 973 LAUNCHES 974 LAUNCHES 974 LAUNCHES 975 LAUN	-		5731	USSR		102.6	81.2	927	843		
912 1230 912 1230 913 1230 914 1230 915 1230 915 1230 916 1230 917 1230 917 1230 918	7-		8826	2000		102.5	81.2	903	860		
972 LAUNCHES 973 LAUNCHES 974 LAUNCHES 974 LAUNCHES 975 L			8827	USSR	- 1	102.3	81.2	901	875		- 1
9972 0050 9972 0050	972 L										
972 0038 972 0038 972 0038 972 0038 972 0038 973 0038 973 0038 973 0038 973 0038 973 0038 974 0038 975		A TAS ISTAL	5772	US		93.9	96.5	49	442		
972 0056	072	INIEL SAL 4	2182	0811		654.4	28.2	S SA S	929		1
COURTY C	972		180	SO		95.1	89.7	75	298		
COSMOS 475 Seat USSR 25 FEB 104-7 74-0			5836	85511		LANGER	FI FMFNTS		TATATA		1
CONTRICT		COSMOS 47	5846	USSP		104.7	74.0	100	196		
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December			5854	ns ns		CURRENI	FLEMENTS	Ē	TAINED		
USSR		COS MOS 4	5852	USSR		97.0	81.2	628	614		
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COSMOS 479 S994 USSR 22 MAR 94.5 74.0		T0-1	5879	ESRO		94.9	97.5		511		
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COSMOS 480 COS			5895	USSR		94.6	74.0		484		
USSR 25 MAR 109:0 82:9			5903	Sn		101.	8.86		000		
0198 METECR 5907 USSR 25 MAR 109.0 82.9 0224 METECR 5918 USSR 30 MAR 102.5 81.2 0234 COSMOS 482 5919 USSR 31 MAR 162.2 52.1 0236 COSMOS 482 5928 USSR 31 MAR 162.2 52.1 0236 DRDGANDZ 5928 FRANCE 4 APR CURRENT ELEMENTS NO CURRENT ELEMENTS NO 0236 LUNAR MODULE 6005 USSR 14 APR CURRENT ELEMENTS NO 0316 LUNAR MODULE 6005 USSR 64.9 37 035 LUNAR MODULE 6005 USSR 64.9 37 037 LUNAR MODULE 6005 USSR 64.9 36.9 037 LUNAR MODULE 6005 USSR 64.9 36.9 037 MAY 104.7 74.0 74.0 037 MAY 104.7 74.0 74.0 043		COSMOS 4	5005	USSR	- 1	100	82.0		1173		- 1
0522A METECR 5917 USSR 30 MAR 102.5 81.2 0223A COSMOS 482 5919 USSR 31 MAR 102.5 52.1 023B USSR 31 MAR 170.7 52.1 023B USSR 31 MAR 170.7 52.1 023B USSR 31 MAR 170.7 52.1 025B DRDGMDL 6075 USSR 14 APR CURRENT ELEMENTS NO 035A COSMOS 489 6075 USSR 64.9 3 035A COSMOS 489 6031 USSR 64.9 3 037A MOLNIYA 2 6034 USSR 64.9 3 041A INTELSAT 4 F-S 6034 USSR 19 MAY 700.8 64.9 3 041A INTELSAT 4 F-S 6059 USSR 19 MAY 700.8 64.9 3 0433 USSR 13 JUN 100.6 74.0 6 6 6 6 0433			2065	USSR		100.0	82.9		1164		
COSMOS 482 5919 USSR 31 MAR 162.2 52.1 0230 USSR 31 MAR 170.7 52.1 0230 USSR 31 MAR 170.7 52.1 0230 USSR 31 MAR 170.7 52.1 0231 USSR 14 APR CURRENT ELEMENTS NO 031C LUNAR MODULE 6005 USSR 104.7 74.0 0334 CUSSR 6005 USSR 64.9 3 0374 MOLNIYA 2 6034 USSR 19 MAY 104.6 74.0 0374 MOLNIYA 2 6034 USSR 19 MAY 700.8 64.9 3 0436 MOLNIYA 2 6034 USSR 13 JUN 104.6 64.9 3 041A INTELSAT 4 F-5 6052 USSR 23 JUN 100.6 74.0 0433 USSR 23 JUN 100.6 74.0 60.1 3 0433 USSR 23 JUN 101.0 74.			5917	USSR		192.5	81.2		900		- 1
0230 USSR 31 MAR 170.7 52.1 023E USSR 31 MAR 170.7 52.1 023E USSR 31 MAR 170.7 52.1 023E PROGNOZ USSR 14 APR CURRENT ELEMENTS NO 035C UNSR 14 APR CURRENT ELEMENTS NO 035C USSR 16 APR CURRENT ELEMENTS NO 035C USSR 16 APR CURRENT ELEMENTS NO 035C USSR 6030 USSR 104.6 037A UNIT ELSAT 4 F-5 6034 USSR 19 MAY 700.8 64.9 3 041A UNIT ELSAT 4 F-5 6052 USSR 13 JUN 100.6 74.0 64.9 3 043A UNIT ELSAT 4 F-5 6052 USSR 23 JUN 100.6 74.0 64.9 3 043A UNIT ELSAT 4 F-5 6056 USSR 23 JUN 100.6 74.0 043A UNIT ELSAT 4 F-5 6056 USSR 23 JUN <td< td=""><td></td><td>COSMOS 48</td><td>5919</td><td>USSR</td><td></td><td>162.2</td><td>52.1</td><td></td><td>205</td><td></td><td></td></td<>		COSMOS 48	5919	USSR		162.2	52.1		205		
0238 SPET 1 5928 FRANCE 41 AAPR 193.2 CURRENT ELEMENTS NO			5923	USSR	- 1	170.7	52.1		211		
COSMOS 489 COSMOS 500 COS			5000	DANG		CURRENI	FI FMF NTS		TATAFO		
031C LUNAR MODULE 6005 USS 16 APR SELENDCENTRIC ORBIT 035A COSMOS 489 6019 USSR 6 MAY 104.7 74.0 1003 037A MOLNIYA 2 6031 USSR 6 MAY 104.7 74.0 990 037A MOLNIYA 2 6031 USSR 6 MAY 104.6 74.0 990 037A MOLNIYA 2 6034 USSR 19 MAY 104.6 74.0 990 041A INTELSAT 4 F-5 6034 USSR 19 MAY 700.8 64.9 39287 041A INTELSAT 4 F-5 6052 1750 13 JUN 1436.2 26.2 36632 043A CDSMOS 404 6058 USSR 23 JUN 100.7 74.0 802 043A METEOR 6061 USSR 23 JUN 101.1 74.0 836 043A METEOR 6063 USSR 23 JUN 101.6 74.0 814 049A <td< td=""><td></td><td>PROGNOZ</td><td>5941</td><td>USSE</td><td>- 1</td><td>CURRENT</td><td>ELEMENTS</td><td></td><td>MININED</td><td></td><td>1</td></td<>		PROGNOZ	5941	USSE	- 1	CURRENT	ELEMENTS		MININED		1
0356 MOL NIYA 2 6020 USSR 6 MAY 104-6 74-0 990 690 69374 MAL NIYA 2 6031 USSR 19 MAY 694-5 64-9 39069 69069 69374 MAL NIYA 2 6031 USSR 19 MAY 700-8 64-9 39287 39287 64-19 MAY 700-8 64-9 39287 23 JUN 100-7 74-0 802 6936 6936 6936 6936 6936 6938 6936 6938 6936 6938 6936 6938 6938		LUNAR MODUL	6005	OS		SELENDO	ZA 10	-	996		
037A MOLNIYA 2 6031 USSR 19 MAY 694.5 64.9 39069 037G			6020	USSA	- 1	104.6	74.0	•	964		
0414 INTELSAT 4 F-5 6052 USR 19 MAY 700.8 64.9 357287 35790		MOLNIYA	6031	USSR		694.5	64.9	6	132		
0413 COSMOS 494 6058 U.S. 13 JUN 653.6 26.2 3663.2 36.3 36.3 36.3 36.3 36.3		2 4 440 0 444	6034	USSR	- 1	100.8	64.9	Q N	26787		
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043C 043C 043C 043C 043C 043C 043C 043C			6061	USSR		100.6	14.0		777		
0458 PROGNOZ 2 6068 USSR 23 JUN 100.6 74.0 814 MAINTAI 046A METEOR 6068 USSR 29 JUN 102.8 81.2 904 O464 METEOR 6080 USSR 30 JUN 102.9 81.2 904 O465 USSR 30 JUN 102.9 81.2 938 O465 USSR 30 JUN 102.9 84.7 74.0 524			5000	1000	- 1				900		- 1
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Control Cont	DES IGNATION		CATALOS	SOURCE	LAUNCH	PERIOD	INCL I-	APOGEE KM.	PERIGEE KM.	TRANSMITTING FRED.(MHZ)	NOTE
Control Cont	972	S									
Control of the cont			-	USSR	1	113.9	74.0	1497	1323		
1975 1975				USSR		114.3	74.0	1498	1384		
Control Cont			-	USSR	1	114.9	74.0	1498	1413		
Common C				USSR		115.3	74.0	1497	1445		,
Colored Still Colored Stil			-	USSR		116.0	74.0		1497		
Colored State Colored Stat			-	USSR		116.4	74.0		1497		
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12.2 0.0.0.0 B			•							265.500.	
972 COCK COS STATE OF 1912 USS	9 9 9			9			0			287.	***
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922 COSC COSMOS 914 O COSMOS 91	972		6145	Sn			37.6	736	472		
972 C0550 972 C0550 973 C0550 974 C0550 975 C0	- 1		5146	SO		1	37.0	929	424		
972 0000 972 0000 972 0000 973 0000 973 0000 974 0000 975 00000 975 0000 975 0	216		6140	2000		-	82.0	696	926		
922 00240 OFFIPA	972		6277	USSR		-	82.8	960	954		
Court Cour	972		7560	USSR		-	82.9	972	855		
972 0055			6152	NADAL			31.0	4 394	626		
972 0666	972	COPERNICUS	6153	Sn	-		35.0	744	734	36.260.136.	
972 0000 COSMOS 516 0130 US 21 AUC 104.0 50.0 104.0 10					- 1					000	**
992 0666 COSMOS 516 6154 USSR 21 AUG 104-5 6468 1000 900 900 900 900 900 900 900 900 90			6155	50			35.0	737	726		
922 0694		SOWSO	6154	USSR			64.8	1040	906		
922 0724 COSMOS 520 6190 USS 2 SEP 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	972	RIAD O	6173	Sn			0.06	839	739		
972 0724 COSMOS 520 63192 USSR 19 SFP 715 65:1 3644 2977 972 0744 COSMOS 520 6319 USSR 19 SFP 715 65:1 3644 2977 972 0744 COSMOS 521 6207 USSR 29 SFP 104:8 65:1 1019 972 0744 COSMOS 531 6207 USSR 29 SFP 104:8 65:1 1019 973 0746 0748 0748 0748 0748 0748 0748 0748 0748	972		6180	SO			90.0	838	707	The second secon	
972 0744 COSMUS 521 6 302 USSR 19 SEP 1706 6 65 1 36848 29597 1 136.990.137.20 972 0744 COSMUS 521 6 570 USSR 29 SEP 1704 9 65 8 995 979 979 972 0744 COSMUS 521 6 570 USSR 29 SEP 1704 9 65 8 995 979 979 979 979 979 979 979 979 979		52	6192	USSR	ı		65.1	37244	2976		
972 0754			6 302	USSR			65.1	36848	N		
972 0746	372	XPLORER	6197	SO		ľ	4.4	233909	7	130-690-131-920	
972 0744 MOLNIYA 2 6208 USSR 29 SEP 7104.9 65.8 1011 972 0744 972 0755 972 0754 972	972	USPC 32	6207	USSB			65.8	995	979		
972 0754 MOLNIYA 2 6200 USSR 30 SEP 717.7 65.2 39929 972 0754	972		6210	USSR	1		65.8	1101	978		
0.764 6212 US 2 0CT 999.5 98.4 747 0.765 6221 US 2 0CT 99.5 98.4 747 0.766 6221 US 2 0CT 99.5 98.4 747 0.766 6224 US 10 0CT 114.8 95.5 1489 0.796 6823 US 10 0CT 114.8 95.7 1489 0.796 6823 US 10 0CT 114.8 95.7 1489 0.796 6234 US 10 0CT 114.9 95.7 1489 0.827 US 10 0CT 114.9 95.7 1489 11 0.828 MSAT-05CAR 6235 US 10 0CT 114.9 101.5 1489 11 0.828 MSAT-05CAR 6235 US 10 0CT 114.9 101.5 1489 11 0.850 MSTA USSR 10 0CT 114.9 101.5 1457 1457 1459	972		6208	USSR			65.2	39829	523		
076B 05217 US 2 0CT 99.5 98.4 751 076E 076E 0521 US 2 0CT 99.5 98.4 751 076E 076E 052E US 2 0CT 99.5 98.4 751 079D 079C 082B US 10 0CT 114.8 95.6 1468 114.8 079D 082A US 10 0CT 114.8 95.6 1468 11 082A NOAA 2 0533 US 10 0CT 114.9 101.5 1468 11 082A NOA 10 0CT 114.9 101.5 1457 1457 1458 10			6212	511	1		98.4	747	727		
075C 075C 09.5 09.5 09.4 751 075E 075E 05.6 05.6 06.2 05.6 06.4 751 079C 079C 079C 06.2 05.6 1489 1487 1488 1487 1487 1488 1487 1488 1488 1488 1488 1488 1488 1488 1488 1488 1488 1488 1488 <td></td> <td></td> <td>6217</td> <td>SO</td> <td></td> <td></td> <td>98.4</td> <td>749</td> <td>728</td> <td></td> <td></td>			6217	SO			98.4	749	728		
076E 0776E 0			6218	Sn	1		4.86	751	729		
079C 079C 079C 079C 079C 079C 079C 079C			6224	50			4.80	741	715		
079D 6823 US 10 OCT 114.8 95.7 1489 0824 USSR 10 OCT 114.6 95.7 1489 1 082A NOAA 6235 USSR 14 CCT 114.9 101.5 1457 1 082A NOAA 6235 USSR 15 OCT 114.9 101.5 1457 1 082C NOAA 0525 USSR 10 CT 114.9 101.5 1457 1 082C NETEOR 6235 USSR 26 OCT 102.6 81.2 891			6822	OS	1		9.56	1468	1422		
082A MOLNIYA 1 6231 USSR 14 CCT 717.4 64.5 39998			6823	SO			95.7	1489	1409		
082A NOAA 2 6235 US 15 OCT 114.9 101.5 1457 1 082B AMSAT-OSCAR 6 6235 US 15 OCT 114.9 101.5 1457 1 085A METEOR 6255 USSR 26 OCT 102.5 81.2 891 087A COSMOS 529 6265 USSR 1 NOV 114.1 74.0 1469 1 087D COSMOS 530 6265 USSR 1 NOV 113.9 74.0 1469 1 087D COSMOS 531 6265 USSR 1 NOV 113.4 74.0 1469 1 087D COSMOS 532 6265 USSR 1 NOV 113.4 74.0 1469 1 087D COSMOS 532 6266 USSR 1 NOV 113.4 74.0 1469 1 087D COSMOS 533 6269 USSR 1 NOV 113.4 74.0 1469 1 087D COSMOS 535 <td< td=""><td></td><td>- 477</td><td>1529</td><td>USSB</td><td>1</td><td></td><td>64.5</td><td>39998</td><td>339</td><td></td><td></td></td<>		- 477	1529	USSB	1		64.5	39998	339		
CB22 AMSAT-OSCAR 6 6236 US 15 DCT 114.9 101.5 1457 1 CB2A METEOR 6 237 US 15 DCT 102.5 1473 1473 CB3A METEOR 6 256 USSR 26 DCT 102.5 81.2 891 CB5B CDSMOS 528 6 264 USSR 1 NOV 114.5 74.0 1469 1 CB7A CDSMOS 531 6 265 USSR 1 NOV 113.8 74.0 1469 1 CB7C CDSMOS 533 6 266 USSR 1 NOV 113.4 74.0 1469 1 CB7C CDSMOS 533 6 266 USSR 1 NOV 113.4 74.0 1469 1 CB7C CDSMOS 534 6 269 USSR 1 NOV 113.4 74.0 1469 1 CB7H CDSMOS 535 6 269 USSR 1 NOV 113.4 74.0 1469 1 CB7H CDSMOS 535 6 269		NOAA 2	6235	ns			101.5	1457	1451		
0854 METEOR 6256 USSR 26 OCT 102-5 91.2 927 103-6 91.2		T-08CAR	6236	Sp	1		101.5	1457	1450		
0858 CCSMOS 528 6262 USSR 26 CCT 102.6 81.2 927 1658		H	6256	800			2010	801	865		
087A COSMOS 528 6264 USSR 1 NOV 114-1 74-0 1469 1 1 087C COSMOS 532 6265 USSR 1 NOV 113-8 74-0 1469 1 1 087C COSMOS 531 6265 USSR 1 NOV 113-8 74-0 1469 1 1 087C COSMOS 533 6265 USSR 1 NOV 113-4 74-0 1469 1 1 087C COSMOS 534 6269 USSR 1 NOV 113-6 74-0 1469 1 1 087C COSMOS 534 6269 USSR 1 NOV 113-9 74-0 1469 1 1 087C COSMOS 535 6269 USSR 1 NOV 113-9 74-0 1469 1 1 087C COSMOS 535 6270 USSR 1 NOV 114-3 74-0 1469 1 1 087C COSMOS 535 6270 USSR 1 NOV 116-6 74-0 1595 1 088A COSMOS 536 6272 USSR 3 NOV 94-9 74-0 538			6257	USSR	1		81.2	927	839		
0872 COSMOS 530 6265 USSR 1 NOV 113.8 74.0 1469 11 0872 COSMOS 531 6265 USSR 1 NOV 113.4 74.0 1469 11 1407 COSMOS 532 6267 USSR 1 NOV 113.4 74.0 1469 11 0874 COSMOS 534 6269 USSR 1 NOV 113.6 74.0 1469 11 0874 COSMOS 535 6269 USSR 1 NOV 113.9 74.0 1469 11 0874 COSMOS 535 6270 USSR 1 NOV 114.3 74.0 1469 11 0887 COSMOS 536 6270 USSR 1 NOV 116.6 74.0 1469 11 0887 COSMOS 536 6272 USSR 3 NOV 94.8 74.0 538 1588 3 NOV 95.2 74.0 547		51	6262	USSR			74.0	1469	1368		
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0.87F COSMOS 533 6.268 USSR 1 NOV 113.9 74.0 1469 1 0.876 COSMOS 534 6.269 USSR 1 NOV 113.9 74.0 1469 1 0.874 COSMOS 535 6.270 USSR 1 NOV 114.3 74.0 1470 1 0.873 COSMOS 536 6.272 USSR 3 NOV 94.8 74.0 538 COSMOS 536 6.272 USSR 3 NOV 95.2 74.0 538		5	6 267	USSR	NON I		74.0	1469	1302		
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088B COSMOS 536 6272 USSR 3 NOV 94.8 74.0 538 CBBD 6770 USSR 3 NOV 95.2 74.0 547			5271	USSR	NON		74.0	1595	1468		
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LANNCHES LANNCH	†-		6 101	1000	1	8.001	74.1		787		
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CONTROL COSTICE 5440 COSTICE 5			6344	USSR		4.7	74.0	525			
MCANIVA		COSMCS	6350	USSR		96.3	20.00	612			
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Martin M		PROGNOZ	6364	USSR		CURRENI	FLEMENTS	T MAI	4		
CURRENT FLEWINTS CORPUS CURRENT FLEWINTS NOT MAINTAINED		200	6374	USUR	1	94.8	74.0	539			
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MOLINIVA 2			6392	USSR		102.5	81.2	0680		The state of the s	
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037C COSMOS 566 5677 USSR 8 JUN 115.0 74.0 1484 1454 1454 1454 1454 1454 1454 1454		COSMOS	5676	USSR		115.3	74.0		1450		
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037F COSMOS 565 6680 USSR 8 JUN 114.0 74.0 1482 1358 0375 COSMOS 570 5683 USSR 8 JUN 114.0 74.0 1481 1329 0377 COSMOS 571 5683 USSR 8 JUN 116.9 74.0 1481 1329 0379 EXPLORER 49 6687 US 10 JUN 222.0 85.7 1162 4 1481 0390 6687 US 10 JUN 222.0 85.7 1162 968 136.860.400.950 5* 0390 6726 US 10 JUN SELENDCENTRIC ORBIT OF STORE 1 10.0 10.0 10.0 10.0 10.0 10.0 10.0 1		COSMOS	5679	USSR	i .	114.4	74.0		1377		
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1377 COSMOS TO SERVICE		SOMSON	5681	USSR		114.0	74.0		1339		
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Court Cour	00000000000000000000000000000000000000		6803	USSR	AU	0.56	74.0	531			
Court Cour	00000000000000000000000000000000000000		5804	USSK	900	717.7	20.00	30140			
COUNTY NOT	00000000000000000000000000000000000000		6815	USSR	V	678.1	65.3	37321			
00040	00000000000000000000000000000000000000		6825	USSB	SEP	113.5	74.0	1405	- 1		
COUNTY C	00000000000000000000000000000000000000		6826	USSR	SEP	113.4	74.0	1407			
COUNTY C	00000000000000000000000000000000000000		8888	1550	SEP	104.8	82.9	1 000			
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COUNTY C	00000000000000000000000000000000000000		5846	USSR		114.0	13.0	064			
COSTONIS SOS GASO USSR Z OCT 113 TO T 73 TO 1486 1132 COSTONIS SOS GASO USSR Z OCT 1114 TO T 73 TO 1487 1137 COSTONIS SOS GASO USSR Z OCT 114 TO T 73 TO 1487 1137 COSTONIS SOS GASO USSR Z OCT 114 TO T 73 TO 1487 1137 COSTONIS SOS GASO USSR Z OCT 114 TO T 73 TO 1487 1147 COSTONIS SOS GASO USSR 2 OCT 114 TO 7 TO 1487 173 TO 1487 174 TO 174 TO <t< td=""><td>00699 00699 00699 00768 00768 00768</td><td></td><td>6847</td><td>USSE</td><td></td><td>110.11</td><td>73.0</td><td>1487</td><td>- 1</td><td></td><td></td></t<>	00699 00699 00699 00768 00768 00768		6847	USSE		110.11	73.0	1487	- 1		
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COUNTY C	006996 006996 00768A 00768A		6850	USSR	50	114.3	73.9	1487			
COMPANDES 5955 COMP	0069H 0769 0760 0780		6851	USSR	200	114.5	13.0	1487			
Color	00000000000000000000000000000000000000		6852	USSK		114.	13.0	1623			
Colore C	0760 0780 0780		5877	USSR		732.6	64.8	40353			
COUNTY C	078C		6898	USSR	20	733.0	64.9	40377			i
00000	1973 078C		5893	Sn	3	17470-2	27.7	236634	1	136-800-137-	-
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0824 INTERCOSMOS 10 6911 USSR 30 0CT 923 735 232 234 654 654 37957 2349 655 3 37957 2349 65	CBIA NNSS	-20	6066	Sn		105.5	1.00	1145			
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0840 MARTHRE IC 6939 USSR 2 NOV 706.5 2 PAC 2 PAC 086A NOAA 3 NOY 16.1 10.8 15.2 15.04 086A NOAA 4 NOA 16.1 10.8 46.0 46.0 086B OBGGD 0.05.2 0.0 10.0 114.4 6.0 46.0 088D OBGGD 0.0 10.0 NOV 114.4 6.0 46.0 0.0 0.0 0.0 0.0 114.4 6.0 46.0 46.0 0.0 0.0 0.0 0.0 114.4 6.0 46.0 46.0 0.0 0.0 0.0 0.0 0.0 114.4 6.0 6.2 14.0 14.0 14.0 6.0 14.0 <td< td=""><td>084A C</td><td></td><td>9169</td><td>USSR</td><td>ÓN</td><td>716.8</td><td>65.3</td><td>37957</td><td></td><td></td><td></td></td<>	084A C		9169	USSR	ÓN	716.8	65.3	37957			
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CORREL COSMUS SPEC NOTE 22* 478 460 CORREL COSMUS	DESA MAR	-	6000	250		116.1	101.8	51	5		
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O97D BOARD COSMOS 614 FOR 55 6965 OF 55 105R OF 55 70 OF 55 806 FOR 55 770 098A 098A 098B 098B 098B 098B 098B 098B 098B 098B	0938		1000	1000		717.6		39844	505		
098A COSMOS 614 6965 USSR 4 DEC 100.6 74.0 806 770 098B COSMOS 614 6965 USSR 4 DEC 100.5 74.0 806 775 100A 6977 USSR 4 DEC 100.5 74.0 810 775 100A 6977 US 13 DEC 1436.1 0.3 35778 35778 100A COSMOS 617 976 US 13 DEC 1436.1 0.4 35804 35778 101A COSMOS 617 6976 US 15 DEC 146.8 17.0 1485 1445 100A COSMOS 617 6986 USSR 19 DEC 115.0 74.0 1488 1445 104D COSMOS 619 6989 USSR 19 DEC 115.0 74.0 1486 1408 104D COSMOS 620 6989 USSR 19 DEC 115.4 74.0 1496 1408 104D COSMOS 621 6989 <td>0000</td> <td></td> <td>7178</td> <td>USSR</td> <td>ON</td> <td>734.7</td> <td></td> <td>40635</td> <td>555</td> <td></td> <td></td>	0000		7178	USSR	ON	734.7		40635	555		
098B 6966 USSR 4 DEC 100+5 74-0 804 758 1098 6977 USSR 4 DEC 100+5 35795 35778 100A 6977 US 13 DEC 1436.1 0.4 35995 35778 101A EXPLORER 51 6976 US 13 DEC 1436.1 0.4 35977 101A EXPLORER 51 6976 US 16 DEC 91.8 67.9 377 137.230.2289. 104A COSMOS 617 5985 USSR 19 DEC 114.0 74.0 1488 1445 104C COSMOS 619 6986 USSR 19 DEC 115.0 74.0 1488 1445 104D COSMOS 619 6989 USSR 19 DEC 115.4 74.0 1495 1408 104E COSMOS 620 6989 USSR 19 DEC 115.4 74.0 1486 1408	098A		6965	USSR	DE	100.6		806	170		
100A	9880		9989	MSSB		2.00		018	775		
100	1973 0980		2009	115	200	1436-1		35795	35778		
1000 6976 US 13 DEC CURRENT ELEMENTS NOT MAINTAINED 137,230,2289, 1000 6977 US 16 DEC 116.9 1485 137,230,2289, 1000 100	1973 1008		6974	50	DEC	1436.3		906	- 1		
104A COSMOS 617 6987 10 DEC 114.0 74.0 1485 1376 1376.2301.2503.0503.0503.0503.0503.0503.0503.0503	1000		9269	SO	DEC	CURRENT	ELEMENT	MA	•	22 220 220	•
104A COSMOS 617 5985 USSR 19 DEC 114.0 74.0 1488 104B COSMOS 618 5987 USSR 19 DEC 115.2 74.0 1488 1488 104D COSMOS 620 6988 USSR 19 DEC 115.4 74.0 1488 104E COSMOS 621 6989 USSR 19 DEC 115.4 74.0 1486	101A	ER 51	6977	Sn	DE	91.8	- 1	370	357	37.230.2289.	*0
104C COSMOS 619 6987 USSR 19 DFC 115.0 74.0 1489 104D COSMOS 620 6988 USSR 19 DFC 115.4 74.0 1495 104E COSMOS 621 6989 USSR 19 DFC 114.8 74.0 1486	100A	617	5985	USSR	DE	2.5.1		1488	1445		
104D COSMOS 620 6988 USSR 19 DEC 115.4 74.0 1495 104E COSMOS 621 6989 USSR 19 DEC 114.8 74.0 1486	1000	619	5987	USSP	PE	115.0	- 1	1489	1426		
104E COSMOS 621 6989 USSR 19 DEC 114.8 74.0 1480	1040	620	6988	USSR	DE	115.4		1495	1460		
	104E	621	6869	USSR	DEC	114.8		1 400	1400		

TIONA	The state of the s									
DESIGNATION	ON NAME	CATALOS	SOURCE	LAUNCH	MINUTES	INCL I-	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREO . (MHZ)	NOTES
1973 LAUNCHE	CHES (CONT.D)									
	COSMOS 622 COSMOS 623	6990	USSR	19 DEC 19 DEC	114.3	74.0	1486	1371		
-	COSMOS 62	6992	USSR	1	114.2	74.0	1487	1353		
973 134J 973 106A	MOLNIYA 2	1000	USSR		717.6	63.5	39885	462		
7	0	7372	HSSB	1	108.0	73.0	1955	400		
	UNEUL	7 000	USSR		108.7	74.0	1949	394		
Γ.	COSMOS 626	1005	USSR	1	104.0	500	1020	918		
	COSMOS 62	2009	USSR		104.1	82.9	666	296		
974 LAUN	UNCHES									
	COSMOS 628	7094	USSR		104.8	82.9	1016	957		
974 0018		7 095	USSR		104.6	82.9	1001	950		
	COSMOS 631	5012	USSR		1.20	74.0	545	505		
		7111	USSR		93.5	74.1	488	406		
		7257	USSR		4.46	74.0	515	466		
	TANSEI 2	7122	NAGAL		118.6	31.2	2953	278		
	METEOS	7 200	USSR		102.1	81.2	868	827		
		7210	USSR		102.1	81.2	925	805		
	UK-X4	7213	¥:		101	8.16	923	103		
		7228	Sn			07.0	8008	417		
		7215	5	- 1	101.0	98.4	933	703		
		7218	SO.		101	6.86	879	779		
		7219	SM		101-5	0.80	886	782		
	CDS MOS 637	7229	USSR		1428.8	2000	33522	785		
		7247	ns n	- 1	94.7	93.9	519	497		
	WESTAR 1	7250	Sn		1436.1	0	35793	35780		
	MOLNIYA	7260	USSR		734.4	64.8	40447	727		
974 6244	COSMOS 64	7265	assn		114.5	74.0	1484	1388		
	COS MCS 64	7 266	USSB	- 1	113.7	74.0	1482	1320		
	COSMOS 643	7267	USSR		114.1	74.0	1483	1334		
	COSMOS 64	1280	11550	- 1	14.3	74.0	1484	1370		
	COSMOS 64	7270	USSR		114.7	74.0	1487	1464		
	COSMOS 64	7271	USSR		114.9	74.0	1485	1424		
	COSMOS 64	7272	USSR		115.1	0.41	1491	1439		
	000	7273	USSK	- 1	102.5	81.2	894	864		
		7275	USSR		102.6	81.2	925	841		
4	MOLNIYA 2	7.276	USSR		717.8	63.6	38946	1411		
	30000	7373	USSR 1155B		113.4	74.0	1402	1369		
t 4	CUSMUS	7284	USSR		113.2	74.0	1 394	1363		
+ +	COSMOS	7291	USSR		103.4	64.9	962	883		
974 032A	COSMOS 65	7297	USSR	17 MAY	1436.1	2.4	35797	35776	136.380.468.82	5. 58
									1682.500	60
034	INTERCOSMOS 11	7299	USSR	17 MAY	94.4	9000	100	462		
900	SCOSMOS 655	7 306	0000		95.1	74.0	540	514		
030		7307	USSR		95.0	74.0	531	514		
032		7515	USSR		95.1	73.9	542	515		
974 6355		7516	USSR		95.6	74.0	400	5115		
535		7518	95511	1	94.6	74.0	515	485		
000		016	1000							

Colored Street Colo	-631			0976	OBJECTS IN OF	ORBIT					
LUNCHES (CONT.D) 10.74 ALISA CONT.D	NATIONAL DESIGNATION		AT ALO	SOURCE		PERIOD MINUTES	INCLI- NAT 10N	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREG . (MHZ)	NOTES
Colored Res	974 LAUNCH	S									
19 19 19 19 19 19 19 19		0	8778	USSR		94 • 3	FNTRIC OR	506	474		
COS		10	7318	sn		1436.2	4.0	35797	35778		*
COSMOS 661 77379 USSSR 21 JUN 100 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9			7325	os n		3085 .8	86.4	123947	3722	.400	
CORNES 60 7730 CORNES 60		1	7326	Sn		8.20	80.6	510	308		
CONTROL CONT		00	7338	0.550		108.7	82.9	1936	402		
Colored State Colored Stat			1339	USSR		95.0	74.0	545	205		
COS HOS 663 7350 USSS 27 JUN 104.0 105.0			7340	USSR		94 •8	0.41	534	493		
March Marc		44	7341	USSE USSE		104.8	82.0	1001	067		
Martin Common C		00	7350	USSR		104.6	82.9	966	965		
March Marc		99	7352	USSB	1	717.9	65.8	38753	1612		
MICHAEL 1960 1958 9 - 10 1952 1952 1952 1953 19		900	7354	USSR		107.4	66.0	38283	1561		
Color Colo		AE LEOR	7369	4550	- 1	102.0	81.2	816	200	And the state of t	
14 12 12 12 12 12 12 12			7369	us ns		468.7	124.7	13749	13471		
Color Colo			7370	S n	- 1	227.9	125.2	11732	234		
Colored Colo			9 599	SO		717.7	124.7	13734	13487		
0650 MOLNIYA 1-5 7392 USSR 29 JUL 222 MENNIS MOLNIYA 1-5 7412 USSR 16 405 1015 1015 1015 1015 1015 1015 1015			7382	48.80	- 1	733.9	63.1	39655	1495		
06500 06500		NIYA 1-	7392	USSR		CURRENT	EL EMENTS	NOT MAIN	TAINED		
Colored Colo			7 399	USSR		292.9	46.9	16326	136		
Colored Colo			7400	USSR		101.5	98.7	33660	1722		
0.664 COSMOS 673 7417 USSR 16 AUG 97.0 81.2 676 500 0.664 COSMOS 675 7413 USSR 16 AUG 97.0 81.2 676 500 0.693 COSMOS 675 7424 USSR 16 AUG 17.0 11.5 16.0 16.0 0.993 COSMOS 675 7426 USSR 11.3 74.0 18.5 15.6 0.912 COSMOS 675 7436 USSR 11.3 74.0 18.6 17.6 0.726 COSMOS 678 7436 USSR 11.5 74.0 18.6 13.9 0.726 COSMOS 678 7436 USSR 11.5 74.0 18.6 13.9 0.726 COSMOS 680 7436 USSR 11.5 74.0 18.6 14.6 0.727 COSMOS 681 7436 USSR 11.5 74.0 18.6 14.6 0.727 COSMOS 682 7441 USSR 11.5 74.0 <t< td=""><td></td><td></td><td>7412</td><td>SO</td><td></td><td>101.6</td><td>98.7</td><td>874</td><td>801</td><td></td><td></td></t<>			7412	SO		101.6	98.7	874	801		
05594 NOS 675 7418 USSR 16 AUG 97-2 811-2 207 0559 05594 0558 16 AUG 97-2 811-2 207 05594 0558 05594 0558 16 AUG 97-2 811-2 207 05594 0558 05594 0558 1559		19	74.17	USSR		97.0	81.2	634	909		
CONTROL CONT			8438	USSR		97.0	81.2	633	809		
Name		67	7424	USSR		113.6	74.0	1425	1365		
0778 COSMOS 676 77434 USSR 119 SEP 100.6 74.0 R17 784 0728 COSMOS 677 7435 USSR 119 SEP 100.6 74.0 R17 784 0728 COSMOS 677 7435 USSR 19 SEP 116.9 74.0 1468 0728 COSMOS 681 7436 USSR 19 SEP 116.9 74.0 1468 0728 COSMOS 683 7442 USSR 19 SEP 116.9 74.0 1468 0728 COSMOS 683 7442 USSR 19 SEP 116.9 74.0 1468 0729 COSMOS 684 7442 USSR 19 SEP 116.9 74.0 1468 1457 0729 USSR 19 SEP 116.9 74.0 1468 1417 0720 USSR 19 USSR 24 OCT 112.4 811.1 1442 1697.500 137.620 1589 0858 NOA 4 SEP 16 USSR 18 OCT 112.9 101.5 1461 1447 1697.500 137.620 1589 0859 USSR 28 OCT 112.9 101.5 1461 1442 1697.500 137.620 1589 0859 USSR 28 OCT 112.9 101.5 1461 1442 1697.500 137.620 1589 0859 USSR 28 OCT 112.9 101.5 1461 1442 1697.500 137.620 1589		i	7426	USSR		113.5	04.0	1420	1353		
Value Valu		67	7433	USSR		100.9	74.0	816	704		
COSMUS STATE COSM			7434	USSR		100 -8	74.0	817	784		
QYZZ COSMOS 677 7437 USSR 19 SEP 115-7 74-0 1473 1468 C72E COSMOS 680 7439 USSR 19 SEP 115-3 74-0 1473 1468 C72E COSMOS 680 7440 USSR 19 SEP 115-3 74-0 1468 1417 C72E COSMOS 682 7441 USSR 19 SEP 115-1 74-0 1468 1417 C72H COSMOS 684 7442 USSR 19 SEP 117-7 74-0 1468 1417 C72H COSMOS 684 7442 USSR 19 SEP 117-7 74-0 1468 1417 C75A COSMOS 684 7466 USSR 10 GCT 67-7 27-2 22-9 54-4 55-0 137-600 137-600 C75A COSMOS 689 7471 UK 15 GCT 92-3 74-7 34-9 49-4 49-4 C75A COSMOS 689 7470 UKS 16 GCT 105-0 <td></td> <td>67</td> <td>7435</td> <td>USSR</td> <td></td> <td>115.0</td> <td>74.0</td> <td>1534</td> <td>1468</td> <td></td> <td></td>		67	7435	USSR		115.0	74.0	1534	1468		
COTACE COSMOS 680 7438 USSR 19 SEP 115.5 74.0 1403 1468 COZZE COSMOS 681 7440 USSR 19 SEP 115.3 74.0 1468 1457 O724 COSMOS 683 7442 USSR 19 SEP 114.7 74.0 1468 1457 O724 COSMOS 683 7442 USSR 19 SEP 114.7 74.0 1468 1435 O724 COSMOS 683 7442 USSR 10 OCT 141.7 74.0 1468 1417 O754 COSMOS 687 7460 USSR 10 OCT 477 247 2529 229 O754 COSMOS 687 747 USSR 11 OCT 477 247		67	7437	USSB	- 1	115.7	74.0	1512	1468		
OT 25 COSMOS 682 7441 USSR 19 SEP 115-1 74-0 1468 1435 O7 26 COSMOS 683 7441 USSR 19 SEP 114-9 74-0 1468 1417 O7 24 COSMOS 683 7442 USSR 19 SEP 114-9 74-0 1468 1417 O7 25 COSMOS 683 7443 USSR 19 SEP 114-9 74-0 1468 1417 O7 25 COSMOS 683 7443 USSR 10 DCT 112-9 27-2 221 221 C755 COSMOS 687 7460 USSR 11 DCT 95-1 27-2 27-2 27-2 O756 COSMOS 687 7460 USSR 11 DCT 95-1 27-2 <		68	7 4 38	USSR		115.5	0.47	1493	1468		
072G COSMOS 683 7441 USSR 19 SEP 114.9 74.0 1468 1436 072H COSMOS 684 7442 USSR 19 SEP 114.7 74.0 1468 1473 072H COSMOS 684 7442 USSR 19 SEP 114.7 74.0 1468 1473 072H COSMOS 684 7445 USSR 19 SEP 117.7 74.0 1690 1473 075A COSMOS 687 7466 USS 10 OCT 607.0 24.7 35794 35783 075A COSMOS 687 7469 USSR 10 OCT 607.0 24.7 3596 229 077A ARIELS 077B COSMOS 689 7476 USSR 18 OCT 105.0 82.9 1022 974 077B COSMOS 689 7476 USSR 18 OCT 105.0 82.9 1022 974 077B COSMOS 689 7476 USSR 28 OCT 105.0 82.9 1022 974 078B MCLNIYA 1 7480 USSR 28 OCT 102.4 81.1 908 840 0898 NOAA 4 7529 US 15 NOV 114.9 101.6 1461 1442 0899 AMSAT-OSCAR 7 7530 US 15 NOV 114.8 101.5 1461 1442 0896 MCLNIYA 3 7540 USSR 21 NOV 77.0 53.8 39643 706		000	7440	USSR		115:1	74.0	1468	1454		
072H COSMOS 684 7442 USSR 19 SEP 1114.7 74.0 1408 1471 075A WESTAR 2 7465 USSR 19 SEP 1114.7 74.0 1408 1471 075A WESTAR 2 7465 USSR 10 OCT 1425.1 0.0 35794 35783 075A COSMOS 687 7469 USSR 11 OCT 92.3 73.9 511 272 075A COSMOS 687 7472 USSR 11 OCT 92.3 73.9 541 507 075A COSMOS 687 7472 USSR 11 OCT 92.3 73.9 541 507 0778 COSMOS 689 7472 USSR 18 OCT 105.0 82.9 74 0779 USSR 24 OCT 717.6 63.8 39604 743 085B NOA 4 7529 USSR 24 OCT 717.6 63.8 39604 743 085B NOA 4 7529 USSR 28 OCT 102.5 81.1 908 840 085B NOA 4 7529 USSR 28 OCT 102.5 81.1 918 840 085B NOA 4 7529 USSR 29 OCT 95.0 95.0 95.0 95.0 95.0 95.0 95.0 95.0		9 9	7441	USSB		114.9	74.0	1468	1436		
OTSA WESTAR VESTAR VESTAR <td></td> <td>9 68</td> <td>7442</td> <td>USSR</td> <td></td> <td>114.7</td> <td>74.0</td> <td>1408</td> <td>141</td> <td></td> <td></td>		9 68	7442	USSR		114.7	74.0	1408	141		
C75B COSMOS 687 7467 US 10 OCT 607.0 221.2 221 221 075A COSMOS 687 7469 USSR 11 OCT 607.0 24.7 3506 229 521 077A ARIEL S 7471 UK 15 OCT 92.3 73.9 544 590 137.600 57 077A ARIEL S 7476 USSR 18 OCT 105.0 82.9 574 590 137.600 57 079A COSMOS 689 7476 USSR 18 OCT 105.0 82.9 1022 974 107 079B COSMOS 689 7476 USSR 24 OCT 717.6 63.8 30604 743 494 174 0813 MCLNIYA 1 7490 USSR 24 OCT 717.6 63.8 30604 743 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405		STAR	7466	us o		1436.1	0,0	35794	35783		
075C COSMOS 687 7468 USSR 10 OCT 607.0 24.7 34506 222 075A ACCSMOS 687 7471 USSR 15 OCT 95.1 2.9 544 500 137.600 57 077A ARTEL 7472 USSR 15 OCT 94.9 2.9 544 500 137.600 157.600 077B ARTEL 7477 USSR 16 OCT 104.9 82.9 1018 969 CF9B MCLNIYA 7485 USSR 24 OCT 777.6 63.8 39604 743 CB3A METEOR 7490 USSR 28 OCT 102.6 81.1 908 840 083B METEOR 7529 USSR 28 OCT 102.5 96.0 1461 1467 136.7500.137.140. 5 089B AMSAT-OSCAR 7529 US 15 NOV 114.9 101.6 1461 1447 1375.500.137.140. 53 089C AMSAT-OSCAR			7467	Sn		112.9	27.2	2501	221		
0778		9	7468	50		607.0	24.7	34506	229		
C778 C05MOS 689 7472 US 15 DCT 94.9 2.8 535 494 C79A C05MOS 689 7476 USSR 18 DCT 105.0 82.9 10122 974 C79A C05MOS 689 7476 USSR 24 DCT 717.6 63.8 39604 743 C81A MCLNIYA 1 7480 USSR 24 DCT 717.6 63.8 39604 743 C83B METEOR 7490 USSR 28 DCT 102.4 81.1 915 843 C85B NOA USSR 28 DCT 102.5 81.1 915 843 C85B NOA 14.9 101.6 1461 1447 136.770.137.140. 5 C85B AMSAT-OSCAR 7 7529 US 15 NOV 114.9 101.6 1461 1447 136.770.137.140. 5 C89C AMSAT-OSCAR 7 7530 US 15 NOV 114.9 101.6 1461 144.3 146.3		00	7471	T X		95.1	2.9	544	200	137.680	*5
C79A COSMOS 689 7476 USSR 18 OCT 105.0 82.9 1022 974 C81A WOLNIYA I 7480 USSR 24 OCT 717.6 63.8 39604 743 C81A WOLNIYA I 7480 USSR 24 OCT 717.6 63.8 39604 743 C81A WOLNIYA I 7493 USSR 28 OCT 102.6 81.1 915 843 C85B USSR 16 NOV 114.9 101.6 1461 1447 136.770.137.140. 5 C89B AMSAT-OSCAR 7 7530 USSR 15 NOV 114.9 101.6 1461 144.7 136.750.137.140. 5 C89B AMSAT-OSCAR 7 7530 USSR			7472	Sn		6. 46	2.8	535	464		
CB13A MCLNIYA 1 7480 USSP 24 OCT 717.6 63.8 39604 743 CB13A METEOR 7490 USSP 24 OCT 717.6 63.8 40.295 761 CB3A METEOR 7490 USSP 24 OCT 722.0 63.8 40.295 761 CB3B METEOR 7490 USSP 28 OCT 102.4 81.1 915 843 CB3B NDAA 4 75.29 US 15 NDV 114.9 101.6 1461 1442 1597.500 CB5B AMSAT-OSCAR 7 7530 US 15 NDV 114.8 101.5 1461 1442 CB9D 101.5 1461 1442 CB9D 089EA 7540 USSR 21 NDV 717.6 63.8 39643 706		68	7476	USSR		105.0	82.0	1022	974		
CBB13 METEOR 7485 USSR 24 DCT 732.0 63.4 40.295 761 CB3A METEOR 7490 USSR 24 DCT 102.4 61.1 908 840 CB3B 7493 USSR 28 DCT 102.4 61.1 908 843 CB5B 7493 USSR 29 DCT 95.0 96.0 528 513 136.770.137.140. 5 CB5B NDA 114.9 101.6 1461 1447 136.770.137.140. 5 CB5B AMSAT-OSCAR 7 7530 US 15 NDV 114.9 101.5 1461 1442 1697.500 5 CB9D AMSAT-OSCAR 7 7531 SPAIN 15 NDV 114.9 101.5 1442 1697.500 53 CB9D OB9EA MCLNIYA 3 7540 USSR 21 NDV 717.6 63.8 39643 706 23			7480	USSP		717.6	63.8	39604	743		
C683A METEOR 7490 USSR 28 BCT 102.4 81.1 908 840 083B 7493 USSR 28 BCT 102.5 81.1 908 840 083B 7493 USSR 28 BCT 102.5 96.0 528 513 089A NDA A 7529 US 15 NDV 114.9 101.6 1461 1447 136.770.137.140. 5 089B AMSAT-OSCAR 7 7530 US 15 NDV 114.8 101.5 1461 1442 1697.500 5 089C INTASAT 7531 SPAIN 15 NDV 114.8 101.5 1461 1442 1697.500 53 092A MOLNIYA 3 7540 USSR 21 NUV 717.6 63.8 39643 706 23		- 1	7485	USSR		732.0	63.8	40295	761		
0859 NDAA 4 7529 US 15 NDV 114.9 101.6 1461 1447 135.770.137.140. 5 0898 AMSAT-OSCAR 7 7530 US 15 NDV 114.8 101.5 1461 1442 1697.500 5 0899 INTEGRAL 7531 SPAIN 15 NDV 114.8 101.5 1461 1442 1697.500 5 0899 INTEGRAL 15 NDV 114.8 101.5 1461 1442 1697.500 5 0890 INTEGRAL 15 NDV 114.8 101.5 1461 1443 2 0890 INTEGRAL 15 NDV 114.8 101.5 1461 1443 2 0890 INTEGRAL 15 NDV 114.8 101.5 1461 1443 2 0890 INTEGRAL 15 NDV 114.8 101.5 1461 1443 2 0890 INTEGRAL 15 NDV 114.8 101.5 1461 1443 2 0890 INTEGRAL 15 NDV 114.8 101.5 1461 1443 2 0890 INTEGRAL 15 NDV 117.6 63.8 39643 706		METEOR	7490	USSP		102.4	51.1	909	840		
089A NDAA 4 7529 US 15 NDV 114.9 101.6 1461 1447 136.770.137.140. 5 089B AMSAT-OSCAR 7 7530 US 15 NDV 114.8 101.5 1461 1442 1697.500 5 089C INTASAT OSCAR 7 7531 SPAIN 15 NDV 114.8 101.5 1461 1442 1697.500 089C 089EA 7540 USSR 21 NDV 717.6 63.8 39643 706			7498	us n		95.0	0.96	528	513		
089B AMSAT-OSCAR 7 7530 US 15 NOV 114.8 101.5 1461 1442 1697.500 55 089C INTASAT 7531 SPAIN 15 NOV 114.9 101.5 1461 1443 2 23 089D - 089EA 7540 USSR 21 NUV 717.6 63.8 39643 706			7529	Sn		114.9	101.6	1461	1447	37.500.137.620	60 60
C89D - 089EA 7540 USSR 21 NUV 717.6 63.8 39643 706 23	00		S	US	ທູ	114.8	500	1461	44	60	ř.
092A MOLNIYA 3 7540 USSR 21 NUV 717.6 63.8 39643	0680	1	1	ns	S	SEE NOT	2				m
	0	MOLNIYA 3	7540	USSR	_	7.6	63.	39643	106		

1974 LAUNCHE		NUMBER	SOURCE	LAUNCH	MINUTES	NATION	KM.	KM.	FREG. (MHZ)	NOTES
9	HES (CONT'D)									
0	INTELSAT & F-	7546	USSR	VON 15	733.7	63.8 404	40430	35785		
0938			Sn	- 1	654.4	26.3	1	9		
0	SKYNET 28	7547	3 :		1435.4	6.00	0	35760		
7	HEL 108 1	7567	FRG	- 1	HEL 100	ENTRIC DRB		;		
00		7568	Sn		CURREN	T ELEMENTS	NOT MAINT	TAINED		
9		7570	F. P. C.		HEL TOC	ENTRIC ORB				
0	METEOR	7574	USSR		102.3	81.2	006	839		
9		7575	USSR		102.3	81.2	954	815		
	CUSMUS 698	757	2002		950	0.47	546	203		
77		7582	8550	- 1	013	74.0	345	334		
'-		7 636	USSR		7.46	74.0	929	460		
-		7695	USSR		94 • 1	74.0	493	461		
٦.		1722	USSR		94.7	73.9	540 640	463		
		77.24	1888		95.1	73.0	542	516		
1-		9793	USSB		92.4	74.0	402	391		
-	SYMPHON IE-A	7578	FRIFRG		1436.1	0.5	35804	35773		
7		7579	Sn	-	95.6	27.0	810	274		
٠.		1580	50		26	0.40	100	662		
7		2000	SI		95.4	27.0	803	275	and described in the second management of the contraction of the contr	
•		0886	o so		683.0	13.1	38220	405		
-	MOLNIYA 2	7583	USSR		717.5	64.4	39521	823		
-		7586	USSR		734 •0	64 .5	40346	808		
	669 SON CO	7887	USSR		92 • 1	TE 24*	389	373		24.
†-	700 AUS 700	ď	USSB	ı	104.7	82.0	0	996		
•-		7594	USSR		104.6	82.9	686	196		
SLAUNC	CHES									
	,									
5 004A	LANDSAT 2	7615	ns	22 JAN	103.2	6.86	922	901	137.360.2229.500, 2265.500.	
0048	- 004 HB		ns		Z	OTE 25*				25*
007A	COSMOS 706	7625	USSR	30 JAN	716.7	63.1	38990	-		
0		7629	USSR 1		716.3	63.2	38965	5		
30	CUSMUS /C/	8694	2000		0.40	0.4	0 4 6) a		
0		7645	USSB		95.00	73.0	414	0	the second section is the contract of the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the section is the section in the s	
975 308E		1777	USSR		92.5	73.9	412	390		
٩	MOLNIYA 2	7641	USSD		717.5	63.8	39707	m.		
00	2110 10410	7653	USSR		133.3	200	40472	40		
, 0		7567	FRANCE		9. 901	40.0	1137	0		
00		7654	FRANCE		104.0	8.64	1094	0		
0		7655	FRANCE		104.1	49.8	1101	0		
O		6592	FRANCE		104	8.04	1119	80		
0	SMS 2	1.548	ns		1430.2	••	35797	\mathbf{x}	1582.500.408.823.	0 0
00	00000	10	SO	IT I	6.	27.6	3051	27		
5	COSMOS 708	0 1	X000	1 1		20.60	100	1370		
50	SPATS (TAIVO)	P	NA GA I	14	2	31.5	2788	200		
50) v	JAPAN		16	31.5	2767	24		
0	7.1	S	USSR	F	15	74.0	1494	46	The state of the s	
•	7	C	USSR	H	14.	73.9	1491	4 1		
3	7	φ	USSR	EE	4	73.9	1488	33		
0150	COSMOS 714	7681	USSR	28 FEB	115.2	73.9	1492	1446		
5	-	2								

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March Marc	:		1		The second secon	and the same of th		THE RESIDENCE OF THE PROPERTY	The second secon	Acres of the second second	
COSTON C	SIGNAT		CAT ALDG NUMBER	SOURCE	AUNC	PER 100 MINUTES	INCLI-	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREG . (MHZ)	NOTES
CONTROL CONT	S LA	S (C									
10 10 10 10 10 10 10 10		SMOS 71	7.683	USSB		- 1	74.0	1515	1481		
Colored Colo		USMOS 71	7684	USSR			74.0	1537	1481		
Control Cont		USMUS /I	7685	USSR		- 1	74.0	1401	1430		
The Cosmos 13 17 18 18 18 18 18 18 18			7687	USSR			E FMENT	NO TON	TATATA		
Colore C			7688	S	- 1	- 1	FLEMENT	NOT MAIN	TAINED		
Colored Fig. Colo		NTERCOSMOS 1	7710	USSR			82.9	1572	287		
Colored State Colored Stat		i	7713	USSR			82.9	1543	282		
Colored State Colored Stat		J	7716	1000			2010	0660	200		
Control Cont		SMOS 72	7718	USSR			64.7	983	886		
Colored Colo		05 MOS 72	7727	USSR			65.5	943	863		
March Marc		E0 S 3	7734	ns			114.9	861	825	6.320.2247.00	
Colored Fig. Colo			1735	Sn	- 1		114.9	860	822		
Marker 1774 1055 114		SMOS 72	7736	USSR			82.9	166	958		
Maria Mari			7737	USSR			82.9	987	958		
Color		MITA	7738	USSR			54.3	39358	929		
Colored State Colored Stat		A	7752	TNOUT			200	16204	מילים ב		
0334 COSMOS 729 0 0558 19 APR 05-5 56-6 56-7 56-7 56-7 56-7 56-7 56-7 5		ĺ	7753	USSR			50.6	622	540		
0.346 COSMOS 729 7489 USSR 22 APR 104.9 R2.9 1000 0346 0340 0348 0348 104.9 R2.9 1000 0348 0348 0348 0348 0348 0348 0348 0			8 0 58	USSR			50.6	567	523		
1344 COSMOS 729 7769 USSR 22 APR 104.9 82.9 1010 978 1354 COSMOS 729 7769 USSR 22 APR 104.9 82.9 1010 978 1355 COSMOS 729 7769 USSR 22 APR 104.9 82.9 1010 978 1355 COSMOS 729 7769 USSR 22 APR 104.9 82.9 1010 978 1355 COSMOS 724 7769 USSR 22 APR 104.9 82.9 1010 978 1355 COSMOS 724 7769 USSR 22 APR 104.9 82.9 1010 978 1355 COSMOS 724 7769 USSR 22 APR 77.7 76.0 22.9 1010 22.0 1355 COSMOS 724 7769 USSR 22 APR 74.0 1010 22.0 1355 COSMOS 724 7769 USSR 22 APR 114.6 74.0 14.5 1355 COSMOS 724 7769 USSR 22 APR 114.6 74.0 14.5 1355 COSMOS 724 USSR 22 APR 114.6 74.0 14.5 1355 COSMOS 724 USSR 22 APR USSR 22 APR 114.6 74.0 14.5 1355 COSMOS 724 USSR 22 APR 114.6 74.0 14.5 1355 USSR COSMOS 724 USSR			9839	USSR	- 1	- 1	50.5	454	400		
0345 MCNITA 1 7769 USSR 22 APR 174.8 82.9 1003 977 1003 977 1003 977 1003 977 1003 977 1003 977 1003 977 1003 977 1003 977 1003 977 1003 977 1003 977 1003 977 1003 977 1003 977 1003 977 1003 978 1 1315 136.680 977 1003 978 1 1315 136.680 977 1003 978 1 1315 136.680 978 1 1315 1315 1315 1315 1315 1315 1315 1		MOS 72	7768	USSR			82.9	1010	978		
0350 MCN 17 1 17 17 17 17 17 17 17 17 17 17 17 1			1769	USSR			82.9	1003	977		
STATE STAT		MOL NIYA I	180	USSR			63.2	39054	1297		
1985 1985		ORFR	7 7 8 8	100			000	407	491	9	
Control of the cont			7789	Sn			5.0	495	488		
Colored Colo		¥	7 7 90	ANAD			0.0	35794	35779		
1996 CASTOR 1990 CASTOR CASTO			7794	3	-		24-2	35575	282	1	
The court of the		CASIUR	2087	N N			600	060	268		
043E		4	7815	150			0.1	35789	35786		
0453A 7816 US 24 MAY 1011-9 98.8 8944 808 0453A 7816 US 24 MAY 1011-9 98.8 8944 808 0453A 7820 USSR 28 MAY 116-5 74-0 1472 1405 0455C COSMOS 734 7823 USSR 28 MAY 115-0 74-0 1475 1445 0455C COSMOS 734 7827 USSR 28 MAY 115-0 74-0 1475 1445 0455C COSMOS 736 7827 USSR 28 MAY 115-0 74-0 1475 1445 0455C COSMOS 736 7827 USSR 28 MAY 115-0 74-0 1471 1471 0454 MODALIZA 7827 USSR 28 MAY 116-0 74-0 1471 1471 0454 MODALIZA 7827 USSR 28 MAY 116-0 74-0 1471 1471 0455 MODALIZA 7827 USSR			7902	ns			25.5	36579	644		
045B COSMOS 732 7817 USS 24 MAY 1101.8 98.8 98.8 98.8 98.8 98.8 98.8 98.8 9			7816	Sn			98.8	894	808		
COUNTY C		,	7817	SO			100	068	200		
CGS MGS 734 7823 USSR 28 MAY 115-0 74.0 1473 1445 CGS MGS 734 7824 USSR 28 MAY 115-0 74.0 1472 1463 CGS MGS 735 7826 USSR 28 MAY 115-0 74.0 1472 1472 Q456 COSMOS 739 7827 USSR 28 MAY 115-0 74.0 1474 Q457 COSMOS 739 7828 USSR 28 MAY 115-0 74.0 1474 Q454 COSMOS 739 7828 USSR 28 MAY 115-0 73.0 1676 Q454 COSMOS 739 7831 USSR 28 MAY 116-0 73.0 1676 Q454 COSMOS 744 73.0 73.0 167.0 1478 Q494 MILLIAN 1 736.4 63.0 4058 925 137.530 Q495 SPUN 113.0 736.5 JUN 736.4 63.0 4058 925 137.530 Q55 SUN 113.0 MSRT 113.0 113.0 113.0 113.0 113.0 Q55 NIMBUS 6 7924 US 12 JUN			7822	4550	- 1	- 1	44	1555	1471		
COSMICS 735 7824 USSR 28 MAY 115.2 74.0 1472 1473 1453 1472 1474 1472 1472 1474 1472 1474 1472 1474 1472 1474 1472 1474 1472 1474 1472 1474 1472 1474 1472 1474 1472 1474 1472 1474 1472 1474 1472 1474 1474 1472 1474 1474 1474 1472 1474		101	7823	USSR			74.0	1473	1445		
0456 COSMOS 739 7825 USSR 28 MAY 115.7 74.0 1530 1471 0456 COSMOS 738 7825 USSR 28 MAY 114.8 74.0 1510 1471 0456 COSMOS 738 7828 USSR 28 MAY 114.8 74.0 1471 0459 SRET 2 7910 FRANCE 5 JUN 717.6 63.0 40345 925 0498 SRET 2 8548 USSR 8 JUN 736.4 63.0 40345 925 0499 SRET 2 8548 USSR 8 JUN 736.4 63.0 40345 925 0491 SRET 2 8548 USSR 8 JUN 736.4 63.0 40358 925 051C SSU 1 7937 USS 8 JUN 736.4 63.0 1388 051C SSU 1 7937 USS 8 JUN 113.6 95.1 1430 1388 051C SSU 1 7924 USS 12 JUN 113.9 95.1 1105 1105 1105 122.500.401.200 0528 VENERA 9 99.9 1105 1105 1105 122.500.401.200 0528 USSR 10 JUN 107.4 99.9 1117 1105 122.500.401.200 0528 USSR 20 JUN 97.2 89.9 99.9 1105 136.920.2212.500 0558 USSR 20 JUN 97.2 81.2 551 538 136.920.2212.500			1824	2000		- 1	0.45	0.44	1403		
045G COSMOS 738 7827 USSR 28 MAY 114.8 74.0 1474 1424 045H COSMOS 739 7828 USSR 28 MAY 114.8 74.0 1474 1424 045H COSMOS 739 7828 USSR 28 MAY 114.8 74.0 1424 049H SRET 2 118.0 736.4 63.0 40345 923 137.530 049F SRET 2 10N 736.4 63.0 40058 923 137.530 049F SRET 2 10N 736.4 63.0 40058 923 137.530 050A VENERAL 113.2 10N 736.5 10N 136.500.401.200 051D VENERAL 10 13.2 10N 113.2 94.9 1105 125.500.401.200 052B VENERAL 10 10 10 10 10 10 10 10 10 10 10 10 10		• •	7826	2000			4 4	1530	1472		
Maintain			7827	USSR			74.0	1510	1471		
Q45J WILL MIXA I 7831 USSR 28 MAY 118.0 73.9 1696 1488 Q49B SPET 2 7910 FRANCE 5 JUN 736.4 63.0 40345 923 137.530 Q49B SPET 2 80.0 100 736.4 63.0 40345 923 137.530 Q55C VENERAL 105 8 JUN 736.4 63.0 40058 925 137.530 Q51C SSU I 7939 US 9 JUN 113.6 95.0 1349 1		1	7828	USSR			74.0	1474	1424		
049B SPET 2 7910 FRANCE 5 JUN 736.4 63.0 40345 923 137.530 049F 95 JUN 736.4 63.0 40058 925 137.530 049F VENERA PSR JUN 736.4 63.0 40058 925 137.530 051C VENERA PSR JUN 113.2 94.9 1349 1349 1349 051D 7937 US B JUN 113.2 94.9 1408 1349 1349 1349 051E 7937 US B JUN 113.4 94.9 1117 1105 1202.500.401.200. 052A VENERA VENERA US 12 JUN 107.4 94.9 1117 1105 1202.500.401.200. 055A VENERA VENERA VENERA VENERA VENERA 1096 1205.500.401.200. 055A VENERA VENERA VENERA VENERA VENERA VENERA VENERA VENERA		*	7831	2880			13.9	1696	1488		
Second		ET 2	7910	FRANCE	1		63.0	40345	923	7.5	
0554 VENERA 9 7915 USSR 8 JUN 113.6 95.0 RBIT 1399 1388 1349 0510 05510			8548	USSR			63.0	40058	955		
051C 550 1 7937 US 8 JUN 113.0 94.9 1348 1348 136.500.401.200. 051E NIMBUS 6 7924 US 8 JUN 113.9 95.1 1430 1349 1348 136.500.401.200. 052E NIMBUS 6 7924 US 12 JUN 107.2 99.9 1105 1096 2253.000 055A VENERA 10 7947 US 12 JUN 107.2 99.9 1105 1096 2253.000 055A VENERA 10 7947 US 18 JUN CURRENT ELEMENTS NOT MAINTAINED 7964 US 18 JUN CURRENT ELEMENTS NOT MAINTAINED 598 595 136.920.2212.500		FRA	7915	USSR			EREAN OR	T			
051E NIMBUS 6 7924 US B JUN 113.9 95.1 1430 1388 136.500.401.200. 052A US 12 JUN 107.2 99.9 1117 1105 1105 1702.500. 1105.253.000 2253.000 055A VENERA 10 7947 USSR 14 JUN 107.2 99.9 1105 1096 7553.000 CURRENT ELEMENTS NOT MAINTAINED 7964 USSR 20 JUN 97.0 81.2 659 553 1096 506 2253.000 055A COSMOS 744 7968 USSR 20 JUN 97.0 81.2 659 553 136.920.2212.500 585 136.920.2212.500 056B COSMOS 744 7968 USSR 20 JUN 97.0 81.2 659 553 136.920.2212.500 551 537 057B CORRENT ELEMENTS NOT MAINTAINED 558 538 136.920.2212.500			207	50			0.40	200	40		
052B VENERA 10 7924 US 12 JUN 107.2 99.9 1117 1105 136.500.401.200. 0554 VENERA 10 7947 USR 12 JUN 107.2 99.9 1105 1096 2253.000 0554 VENERA 10 7947 USR 12 JUN 107.2 99.9 1105 1096 2253.000 0554 VENERA 10 7947 USR 12 JUN 107.2 99.9 1105 1096 2253.000 0554 VENERA 10 10 10 10 10 10 10 10 10 10 10 10 10			7939	ns		1	95.1	43	38		
1702-5004 1702-504 1702-5004 1702-504		BUS	7 9 2 4	Sn			6.66	Ξ	2	500.401.20	2
12 JUN 107.2 99.9 1105 1096 1105 1096 1094 1095 1096											* *
USSA	0.5		7946	ns			6.66	2	0	•	,
7963 US 18 JUN CURRENT ELEMENTS NOT MAINTAINED 7964 US 18 JUN CURRENT ELEMENTS NOT MAINTAINED 7964 US 18 JUN 97.0 81.2 638 7969 USR 20 JUN 97.0 81.2 659 7569 S85 7969 USR 20 JUN 97.0 81.2 659 7571 US 21 JUN 95.5 32.9 551 537	05	VENERA 10	7947	USSR			NEREAN ORBI				
056A COSMOS 744 7968 USSR 20 JUN 97.2 81.2 659 585 136.920.2212.500 0578 0578 155.920.2212.500 0578 15.0 81.2 659 553 538 136.920.2212.500 0578 15.0 81.2 659 551 551 551 551 551 551 551 551 551 5	000		7963	SO			EL EMENTS	TOT MAI	Z -		
0568 7969 USSR 20 JUN 97.2 81.2 669 585 136.920.2212.500 6578 553 538 136.920.2212.500 6578 553 537 136.920.2212.500	000		7968	1.55R		-	81.2	638			
0578 050 8 7970 US 21 JUN 95-5 32-9 553 538 136-920-2212-500	05		1969	USSR			81.2	699	585		i
7971 US Z1 JUN 95-5 52-9 551	3	1	7970	Sn	1		32.0	553	538		2
The same of the sa	0 0	042 308303	1971	SO			32.9	155	537		

DESIGNATIO	ON NAME	NJ MBER	SOURCE	LAUNCH	MINUTES	NATION	¥	K.	FREG. (MHZ)	
75 LAUNCHE	CHES (CONT 'D)									
1975 0628		8010	USSR	4 JUL	95.0	74.0	550	494		
0	MOLNIYA 2	8015	USSR	- 1	718.9	63.1	39	1234		
OC	METEOR 2	8318	USSE		102.4	81.2	39	855		
9		8 027	USSR	- 1	102.5	81.3		840		
30		8039	USSR		102.4	81.2		854		
0	SMOS 75	8036	USSR		92.5	71.0		256		
0	COSMOS 752	9043	USSR		4.46	65.8		478		
3		8044	USSR		94.3	65.8	č	465	V30 75.	
) ·	8-800	2006	ESP CS		130.1	0.0	, 4	331	·	n
9	COSMOS 755	8072	USSB	- 1	104.9	82.9	7	972		
0		8073	USSR			82.9	_	996		
2 (VIKING URBITER I	8108	50			CENTRIC ORBI		the state of the s		-
) (COSMOS 756	9127	USSR			81.2	63	620		
0		8128	USSR		97.3	81.2	67	- 1		
o	SYMPHONIE-B	8132	FRZFRG		1436.1	0.5	3582	35747		
0.		8133	SO		109.6	25.3	2001	184		
,	MOINTAN	8187	USSR	ŧ	717.7	63.7	39812	540		
O		8274	USSR		735.9	63.7	4060	643		
0	MOLNIYA 2	8195	USSR		717.7	63.1	3918	1169		
0		8418	2880		133.7	63.1	3996	071		
,	4	2558	NAGAL		105.9	46.9	110	975		
))	VIKING ORBITER 2	8199	Sn		W	'n				
9	00000	8272	Sn	-	9	3	L			
30	COSMOS 761	2222	2000		115.1	0.47	1485	1440		
) ()	CSMOS 76	8287	USSR		115.8	74.0		1475		
0	05M0S 76	8288	USSR		116.0	74.0		1480		
9	05 MOS 76	6286	USSR		110.3	0.44		1479		
) '	DS MOS 76	2000	USSR		115.3	74.0		1457		
7	OSMOS 76	8 202	USSB	- 1	115.5	74.0	- 1	1472		
,,	;	8255	USSR		117.8	74.0		1482		
3 (METEUR	8563	0228	- 1	102.3	2010		670		
)	022 508503	8 325	USSB		100	82.9		1166		
.0		9 326	USSR		109.0	82.9	- 1	1163		
0	INTELSAT 4A F-1	8330	1150		1436.1	0.0	m I	35785		
30	0-20	8331	COANCE		000	2022	"	004		
1	d	8 3 3 3	FRANCE		96.8	37.1	1	499		
0		8 336	FRANCE		96.3	37.1		493		
0	A STATE OF THE STA	8337	FRANCE	1	1.96	37.0		510		
30		8340	FRANCE		2.96	37.1		964		
)		8 342	FDANCE	1	96.5	37.1	1	493		
, (COSMOS 773	3 3 4 3	USSR		100 • 8	74.0		190		
7		8 344	USSR	- 1	100.7	74.0	- 1	778		
C		9346	USSP		100.6	74.0	•	٠,		
	COSMOS 775	8 357	USSR		1434.1	0.1	., ,	35683		
,		1 4 4	1000		632.4	46.9) [457		
, ()	TIP 2	9361	US		98.8	90.3		581		
3		8 364	Sn		94.2	2.06		348		
Э.		8409	SO		95.7	8.06	•	400		
7	60ES 1	355		1	14300	100	1	337.6	1682-500	2*
75 103C		8368	SO	16 OCT	269.0	23.7	32591	144		

DESIGNATION	NAME	NUMBER	SOURCE	LAUNCH	MINUTES	NATION	KM.	KM.	FREG. (MHZ)	NOTES
5 LAUNCHE	ES (CONT'D)									
1975 1028 -	1028P COSMOS 778	8419	USSR	29 OCT	SEE NOTE 104.8	82.9	1007	1007 973		50.
	MOLNIYA 3	8425	USSR			65.0	39222	1130		
-	0	8462	USSR	- 1	- 1	62.9	40009	241	137.230,2289.5	2009
	COSMOS 781	444	USSR			74.0	545	506 490		
		3447	0558			13.9	806	464		
•		8448	USSR			74.0	496	544 542		
		8776	USSR			74.0	491	453		
-		8777	USSR			74.0	504	454		
7.	FAT SOMSON	8668	8550	1	1	74.0	815	794		
-	0	8459	USSR			74.0	813	785		
-		9572	USSR	1	1	74.0	916	200		
	INTERCOSMOS 14	8468	SO			73.9	1656	333		
• -	•	8472	USSR			74.0	1644	324		
-		8474	USSP			73.0	1737	370		
1-		8765	USSR	i .		72.3	1703	409		
-		8766	USSR			72.6	1498	373		
-		8473	USSR			020	35792	35788		
	RCA-SAICUM-I	8479	o o			26.6	34910	263		
• -		8482	0.S			LEMENTS	NOT MAIN	TAINED		
-		8516	Sn			LEMENTS	NOT MAIN	TATNED		
7-	C AYIN IOM	8492	USSR	ı	1	63.0	39693	662		
		8 529	USSR			65.9	40405	999		
۳.	PROGNOZ 4	9510	USSR			FMFNTS	NOT MAIN	TAINED		
-	A SOCIAL	8546	USSR	- 1		46.3	27489	208		
-		9547	USSR			46.3	32625	194		
-	METEOR	8519	USSR			81.2	905	837		
1-	MOLNIYA 3	8521	USSR			63.0	39676	675		
_		3 6 0 0	USSK			6.70	1	8		
976 LAUNCHE	ES									
0	COSMOS 787	S	USSR	1	95.	74.0	545	516		
0		R) (USSR		95.	74.0	550	501		
90		n u	90001	1	92	74.0	403	382		
90		70	USSR		96	73.9	511	469		
.0			USSR		93.	0.4.	471	#5#		
0		- 1	USSR		• 46	0.47	000	454		
0		~ a	2000		03	73.9	470	424		
) C		000	USSR		93.	74.0		421		
9	HEL 105 2	S	FRG	- 1	HE	NIBIC OPP	1			
0		CO U	Sn		II	NTRIC ORBIT				
9		n y	CANADA		436	0.5	35791	35781	2277.500	ň
) C	613) U	OS		627.	25.3	35570	234		
, 0	COSMOS 789	S	USSR		104	82.9	1016	974		
0		C) A	USSR		104	62.5	39472	882		
3	MOLNIVA	Cr	355D	- 1	695	63.1	38378	866		
976 007A	COS MOS 790	8604	USSR	22 JAN	95.	74.0	555	200		
		ų			90		000	-		

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DESIGNATION NATION NATI		NU MBER MAGNUM MAGNU	1 1 5 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	28 JAN 28	MINUTES	NAT 10N	. E	E	FREO . (MHZ)	NOTES
0008B COS 0008B COS 0008C COS 0108C	7791 7792 7794 7794 7794 7797 798 7798 800 800 801	885000 885000 885000 885000 88511 88513	USSR USSR USSR USSR USSR USSR USSR USSR		115.1	74.0				
000888 000888 000888 000886 000886 001086 00108	791 792 793 794 797 797 797 797 800 801	00000000000000000000000000000000000000	USSR USSR USSR USSR USSR USSR USSR USSR		114.7	74.0				
00088 00080 00080 00080 00080 00108 00108 00118 00118 00118 00118 00118 00118 00118 00118 00118 00118 00118 00118 00118	7792 7793 7794 7794 7794 7796 7796 800 801 801	88 98 98 98 98 98 98 98 98 98 98 98 98 9	USSR USSR USSR USSR USSR USSR USSR USSR		115.1		1488	1403		
00000000000000000000000000000000000000	795 795 797 797 798 798 800 800 803 803	00000000000000000000000000000000000000	1 1 5 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8			74.0	1492	1437		
00000000000000000000000000000000000000	795 796 797 798 798 800 803 803	8 6 6 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	USSR USSR USSR USSR USSR USSR USSR USSR		115.3	74.0	1495	1453		
00000000000000000000000000000000000000	797 798 798 800 800 803 803 7 1	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	USSR USSR USSR USSR USSR USSR USSR USSR		115.6	74.0	1499	1469		
00000000000000000000000000000000000000	1798 (17 4A F- 800 803 803 1 1	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	USSR USSR USSR USSR USSR USSR USSR USSR		9 9 1 1	74.0	1530	1481		
001084 001084 001128 001128 00114 00114 00114 00114 00114 00114 00114	800 801 803 803 1 1	00000000000000000000000000000000000000	USSR USSR USSR USSR USSR USSR USSR		116.3	74.0	1555	1481		
00100A 00111111111111111111111111111111	MCS 800 MCS 801 MCS 803 MCS 803 MCS 803 MCS 803 MCS 807 MCS 807 MGS 807	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	USSR USSR USSR USSR USSR USSR USSR		117.9	74.0	1691	1485		
001128 001128 001128 001128 00197 00197 00198	MOS MOS MOS	00000000000000000000000000000000000000	USSR USSR USSR USSR USSR		1436.1		35791	35782		
00118 00118 001148 001170 00198	MOS NIYA	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	USSR USSR USSR USSR		2000	82.0	1013	985		-
00123 00123 00142 00146 00177 00198	MCS NIYA	86658 86659 86659 86689 86689 8669 8669 8	USSR USSR USSR USSR USSR		104.9	82.9	1005	981		
00123 00148 00148 00178 00178 00198	NIYA MOS	8659 8659 8668 8669 8690 8771 8771 8771 8771	USSR USSR USSR		93.5	70.0	149	261		
00148 01148 01178 01198 0218	NIYA WOS	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	USSR		91.0	40.0	401	250		
0011468 0011468 001070 001098	NIYA WOS	88690 88690 88697 88709 8711 8711	USSR		92.3	2017	264	107		
001140 01174 01174 01198	NIVA WOS	86690 89697 89792 8710 87411 87411			0.00	65.00	616	540		
017A 019A 019B	NIVA MOS	9697 9702 9709 9710 9711 9741	USSP		96.3	65.8	615	553		
0194 0198 0198 0214	M V I V A	8762 8700 8710 8741 9741 9744	0.S		1436.2	1.6	35801	35774		
0198 0198 021A	8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	8 7 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Sn		624.0	25.1	75311	310		
019B	8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	8 9 9 8 7 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MADAN		1.601	400	300	400		
	8 9 9	9411 9744 9745	28.50		717.7	63.3	39903	449		
0210	8 8	9744	USSR		731.0	63.3	40566	443		
76 022A COSMO	8 6 8	9745	USSR		109.0	82.9	1967	399		
0228	0 6 6	9 7 4 6	USSR		108.8	FI FMFNTS	NOT AM TON	ATNED		
75 0238 LES	D A D	8747	50		CURRENT	FLEMENTS	NIAM	AINED		
0230 500		8748	Sin		7333.8	26.7	119246	118076		
023D SOL	RAD 118	8749	SO		7334.6	26.8	118996	118344	136.530	2*
76 023F		8751	SO		1464.8	EL FMENTS	MOT WATE	35555		
76 323H		8753	ns O		CURRENT	FLEMENTS	NOT MAIN	AINED		
023J		9832	Sn		CURRENT	ELEMENTS	NOT MAIN	AINED		-
76 024A COSMOS	MOS 808	9754	USSR		97.0	81.2	634	200		
0264	NO. NIXA 1	8762	ussn		717.6	63.2	39853	497		
2260		8792	USSR		696.5	63.2	38967	333		
DZ9A KCA	-SAICOM-II	8774	5		1430 -1	9.90	34689	221		
031A C	USMUS 812	9794	USSR		95.1	74.0	544	509		
0318	;	8795	USSR		0.59	74.0	543	498		
031C		9836	USSB		94.1	0.4	508	444		
75 0328 ME LEUR	E08	66.8	115.5R		102.3	81.2	916	825		
76 035A NATO	A-111 0	9808	NATO		1436.2	2.4	35796	35781		
0350	i	8810	000		593.3	20.00	33825	472		
76 0378 - 037AA	AA	7166	USSR		SEE NOT	27*				27*
038A		Q	Sn		107.4	63.4	-	1079		
0388		oc o	s o		107.3	63.4		1001		
76 0380 550-1		CO	n s		107.5	63.4	-	1085		
0.38E		a co	US		107.6	63.4	-	1086		
76 038F		œ	Sn		107.3	63.4		1 079		
76 035G		Dα	s o		107.1	63.4		1072		
76 038J SSU-	-3	00	SO		107.5	63.4	-	1080		
038K		- 0	SO		107.1	400.0	- 6	5837		
0398	AGEOS	0.00	SI		152.7	109.6	2	305		
039C		8822	ns		225.4	109.8	5945	5837		
76 041A MOLNIY	NIYA 3	OD:	USSR		117.6	63.4	3	204		

A	1 1 1	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	CAT ALOS NJ MBER	SOURCE	LAUNCH	ERIODINUTE	INCLI- NATION	APOGEE KM.	ER 1G	TRANSMITTING FREG. (MHZ)	NOTES
CONTRICT OF STATE CONT	L L L L L L L L L L L L L L L L L L L	82 82	8844								
CORNES REST CORNES COR	00000000000000000000000000000000000000	82 82	8844								
Colored State Colored Stat	00000000000000000000000000000000000000	82 82	8838	USSR		1436.3	63.4		LC)		
Colored State Colored Stat	00000000000000000000000000000000000000	82 82	9840	US	- 1	102.2	21.0		617		
10 10 10 10 10 10 10 10	00000000000000000000000000000000000000	82 82	989	USSB		102.4	100	915	836		
Colored Reg	00000000000000000000000000000000000000	S 82	8860	SO		105.6	9.66	1059	966		
CONTROL CONT	00000000000000000000000000000000000000	S 82	1989	S		105.0	0.00	1058	1012		The second secon
COMPANY COSMON SEZ COSMO SEZ COSMON SEZ COSMO SEZ C	00000000000000000000000000000000000000	S 82	8868	ns n		104.9	6.66	1034	953		
Colored Registration	00000000000000000000000000000000000000	S 82	8865	USSR		63.6	74.0	999	275		
Control of the cont	0500A 0511A 0531B 0531B 0531B 054A	\$ 82	8866	USSR		93.4	74.0	617			
Correct Series Corr	0518 05318 05318 05318 0548	\$ 82	8871	Sn		CURRENT	EMENTS	¥ 5	7		
10 10 10 10 10 10 10 10	05318 05318 05318 0544	1	8873	USSR		104.9	82.9	600			
Control Cont	0538 0538 0538 0548		8874	USSR		104 .8	82.9	1001	978		
COS	0538 053F 054A		8882	Sn		1436.0	2.0	35790	35779		
Color	054A 054B		8883	SO		95.4	28.5		263		
COSMICS RESPONDED COSM	0548		0160	200	1	6.620	73.0	-	1307		
1991 1992 1993 1993 1993 1994 1995			8890	USSB		116.2	73.9	1546	1483		
0544 COSMOS 828 828 828 83992 USSR 15 JUN 115:1 73:9 1402 1432 1432 1432 1433 1433 1433 1433 143	054C		1688	USSB	- 1	114.9	73.9	1491	1415		
054E CORMOS 829 8893 USSR 15 JUN 115-3 73-9 1492 1452 0546 CORMOS 831 8893 USSR 15 JUN 115-3 73-9 1492 1452 05546 CORMOS 831 8893 USSR 15 JUN 116-8 73-9 1492 1483 0557 SALYUT 5 8901 USSR 15 JUN 117-0 73-0 1483 0557 SALYUT 5 8901 USSR 15 JUN 117-0 73-0 1483 0557 SALYUT 5 8901 USSR 15 JUN 117-0 73-0 1483 0557 SALYUT 5 8901 USSR 15 JUN 117-0 73-0 1483 0557 SALYUT 5 8901 USSR 15 JUN 117-0 73-0 1483 0557 SALYUT 5 8901 USSR 15 JUN 117-0 73-0 1483 0557 SALYUT 5 8901 USSR 15 JUN 117-0 73-0 1483 0558 COSMOS 83-0 1483 0559 USSR 25 JUN 117-0 73-0 1483 0559 USSR 25 JUN 117-0 73-0 1483 0559 USSR 25 JUN 117-0 1483 0559 USSR 27 JUN 117-0 1483 0559 USSR	0540		9892	USSR		115.1	73.9	1490	1434		
COS	054E		8893	USSR		115.3	73.9	1492	1452		
COUNTY C	7400		4 0 0 0	2000		115.8	73.0	1000	1476		
15 1 15 1 15 1 15 1 15 1 1	1400		8896	USSR		116.0	73.9	1522	1483		
Name	0543		8897	USSP		117.9	73.9	1691	1487		
SALVUT 5 SOUTH 1	056A	ERCOSMOS 1	8903	USSR		94.5	74.0	514	483		
CURRENT ELEMENTS NOT WAINTAINED COLOR COLO	4250	Y	1100	9551	1	80.5	51.5	252	248		
0590 COSMOS 836 8916 USS 26 JUN CURRENT ELEMENTS NOT MAINTAINED D620 USSR 29 JUN 100.9	050A	5	8916	ns ns		CURRENT	LEMENT	MAI	Y		
0618 COSMOS 836 896 9923 USSR 29 JUN 100.8 FEMENTS NOT MATURATION OF MAT			8168	Sn		CURRENT	LEMENT	4	AIA		
Colored Barboard Ba	0650		8919	SO		CURRENT	ZA O	Y W	2		
COS MICS 837 COS MICS 838 COS MICS 841 COS MICS 842 COS MICS 841 COS MICS 842 COS MICS 843 COS MICS 842 COS MICS 843 COS	4100	0	8024	4550		8.001	74.0	811	787	And the state of t	
Colored Bay	362A	\$ 83	9927	USSR		98.4	62.7	938	435		0
06534 COSMOS 838 8932 USSR 2 JUL 193.2 24.8 24.8 24.9 24.9 24.9 065.8 06	062E	1	8931	USSR	- 1	98.3	62.7	956	437		R
OFFICE PALAPA I 9000 INDNSA B JUL 1436-2 06-3 5626 5762 5774 5774 5774 5774 5774 5774 5774 5774 5774 5774 5774 5774 5774 5774	0658	83	9007	USSR		177.6	02.00	7941	9 4 4 0		10
Decay Name	0650		8006	90		97.2	96.3	- 1	- 1		PC
COSMICS 839 9011 USSR 8 JUL 116.6 65.8 2092 988 C673 COSMICS 839 9013 USSR 8 JUL 116.6 65.8 2092 976 C69A COSMICS 841 9022 USSR 15 JUL 116.6 65.8 2096 976 C69B COSMICS 842 9022 USSR 15 JUL 100.7 74.0 808 777 D70B COSMICS 842 9044 USSR 21 JUL 104.9 82.9 1013 968 D70B COSMICS 842 9044 USSR 21 JUL 104.7 82.9 1013 968 D73B COMSTAR 2 JUL 104.7 82.9 1013 968 D73B COMSTAR 2 JUL 104.7 82.9 1013 968 D73B COMSTAR 2 JUL 104.9 82.9 1013 968 D75A COSMICS 845 9053 USSR 27 JUL 95.0 74.0 <t< td=""><td>366A P</td><td>APA</td><td>6006</td><td>ASNONI</td><td></td><td>1436.2</td><td>0.00</td><td></td><td>S.</td><td></td><td>N. OC</td></t<>	366A P	APA	6006	ASNONI		1436.2	0.00		S.		N. OC
0673 9013 USSR 6 JUL 116.6 65.8 2086 976 0674 COSMOS 841 9022 USSR 15 JUL 116.8 65.8 2086 976 069B COSMOS 842 9023 USSR 15 JUL 100.7 74.0 808 777 070A COSMOS 842 9042 USSR 21 JUL 100.7 74.0 808 777 077A COM STAR 2 9044 USSR 21 JUL 104.7 74.0 808 777 073A COM STAR 2 9047 USSR 22 JUL 1436.1 0.0 3580.1 35774 073A MOLNIYA 1 9049 USSR 22 JUL 648.3 22.0 366.8 568 075A MOLNIYA 1 9049 USSR 23 JUL 648.4 52.0 366.8 568 075A MOLNIYA 1 9049 USSR 27 JUL 95.0 74.0 55.0 499 075G USSR </td <td>067A</td> <td></td> <td>1100</td> <td>USSR</td> <td></td> <td>116.8</td> <td>65.8</td> <td>0 60</td> <td>988</td> <td></td> <td>A]</td>	067A		1100	USSR		116.8	65.8	0 60	988		A]
967C USSR 1 Long 55.8 2092 991 069B COSMOS 841 9022 USSR 15 JUL 100.7 74.0 808 777 069B COSMOS 842 9022 USSR 21 JUL 100.7 74.0 808 777 073A COM STAR 2 9044 USSR 21 JUL 104.7 82.9 10013 968 073A COM STAR 2 9044 USSR 22 JUL 1436.1 0.0 35801 35774 073B COM STAR 2 9047 USSR 22 JUL 1436.1 0.0 35801 35774 075B COSMOS 845 9049 USSR 22 JUL 62.9 3613 556 075B COSMOS 845 9053 USSR 27 JUL 95.0 74.0 549 075G USSR 27 JUL 95.0 74.0 74.0 74.0 74.0 075G USSR 27 JUL 94.0 74.0 74.0 74.0 </td <td>6673</td> <td></td> <td>9013</td> <td>USSR</td> <td></td> <td>116.6</td> <td>65.8</td> <td>2086</td> <td>976</td> <td></td> <td>L L</td>	6673		9013	USSR		116.6	65.8	2086	976		L L
06948 COSMUS 841 9022 USSR 15 JUL 100.7 74.0 808 777 763 700 80 8 777 74.0 808 808 808 777 74.0 808 808 808 777 74.0 808 808 808 808 808 808 808 808 808 8	3676	1	9010	assn	1	116.8	65.8	2002	100		P
0703 COM STAR 2 9025 USSR 21 JUL 104:9 92:9 1013 968 0703 COM STAR 2 9025 USSR 21 JUL 104:7 82:9 1013 968 073 COM STAR 2 9049 USSR 22 JUL 1436:1 0.0 35801 35774 073 COM STAR 2 9049 USSR 22 JUL 148:3 22:0 36801 35774 074 USSR 22 JUL 17:6 62:9 3601 688 075 USSR 23 JUL 717:6 62:9 3650 688 075 USSR 27 JUL 95:0 74:0 550 498 075 USSR 27 JUL 95:0 74:0 550 498 075 USSR 27 JUL 97:1 74:0 74:0 509 075 USSR 27 JUL 94:2 74:0 533 478 075 USSR 27 JUL 94:2	A 6 9 9	8	2206	USSK		1000	0.47		111		A U
0708 COMSTAR 2 9044 USSR 21 JUL 164.7 82.9 1002 968 073A COMSTAR 2 9047 USSR 22 JUL 1436.1 0.0 35801 35774 073A MOLNIYA 1 9049 USSR 22 JUL 717.6 63.0 39661 688 074A MOLNIYA 1 9049 USSR 23 JUL 717.6 63.0 39661 688 075A USSR 23 JUL 717.6 63.0 39661 688 075G USSR 27 JUL 95.0 74.0 550 498 075G USSR 27 JUL 95.0 74.0 550 498 075G USSR 27 JUL 96.9 74.0 74.0 550 075G USSR 27 JUL 97.1 74.0 73.9 481 075G USSR 27 JUL 94.2 74.0 53.3 478 075G USSR 27 JUL 94.2	0704		9029	USSR		104.9	82.9	1013	896		G A
073A COMSTAR 2 9047 US 22 JUL 1436.1 0.0 35801 35774 073B USSR 22 JUL 648.3 25.0 3566 556 074E MOLNIYA I 9049 USSR 22 JUL 648.3 556 075A COSMOS 845 9059 USSR 23 JUL 67.6 52.9 38726 668 075B USSR 27 JUL 95.1 74.0 550 498 075C HOSSR 27 JUL 95.0 74.0 550 498 075E HOSSR 27 JUL 96.9 73.9 481 075E HOSSR 27 JUL 97.1 74.0 73.9 53.3 481 075E HOSSR 27 JUL 94.7 74.0 73.9 53.3 481 075F HOSSR 27 JUL 94.7 74.0 53.4 481 075H HOSSR 27 JUL 94.4 50.5 518 461 </td <td>0708</td> <td></td> <td>9006</td> <td>USSR</td> <td></td> <td>104.7</td> <td>82.9</td> <td>1002</td> <td>- 1</td> <td></td> <td>E</td>	0708		9006	USSR		104.7	82.9	1002	- 1		E
073B MOLNIYA I 9329 USS 22 JUL 717.6 53.0 39561 688 C74E MOLNIYA I 9049 USSR 23 JUL 62.9 38726 668 075A COSMOS 845 9053 USSR 27 JUL 69.1 74.0 59.0 075C O75B O75B O75B 49.0 74.0 550 49.0 075E O75B USSR 27 JUL 94.6 74.0 531 49.9 075E O75B USSR 27 JUL 94.6 74.0 735 49.9 075E USSR 27 JUL 94.7 74.0 735 481 075E USSR 27 JUL 94.7 74.0 73.9 53.3 481 075G USSR 27 JUL 94.7 74.0 53.3 481 075G USSR 27 JUL 94.7 74.1 53.2 478 075G USSR 27 JUL 94.2 7	073A		9047	Sn	- 1	1436.1	0.00	35801	S		1
C74E COSMOS 845 9269 USSR 23 JUL 698.4 62.9 38726 668 075A COSMOS 845 9054 USSR 27 JUL 95.0 74.0 549 508 075C 9054 USSR 27 JUL 94.6 74.0 531 475 075E 9269 USSR 27 JUL 96.9 73.9 481 075E 9268 USSR 27 JUL 94.7 74.0 735 499 075E 9265 USSR 27 JUL 94.7 74.0 735 481 075G 9265 USSR 27 JUL 94.7 74.1 53.4 481 075G 978G USSR 27 JUL 94.7 74.1 53.6 481 075G USSR 27 JUL 94.7 74.1 53.6 481 075G USSR 27 JUL 94.2 50.5 518 461	0758		9359	1888		717.6	0.89	39661	688		S
075A COSMOS 845 9053 USSR 27 JUL 95-1 74-0 549 075B 075B 9054 USSR 27 JUL 95-0 74-0 550 075B 9267 USSR 27 JUL 96-9 73-9 73-9 075E 9267 USSR 27 JUL 96-9 73-9 73-9 075G USSR 27 JUL 94-7 74-0 533 075G USSR 27 JUL 94-7 74-0 533 075G USSR 27 JUL 94-7 74-0 533 075G 971B USSR 27 JUL 94-7 74-0 53.5 075G 975B USSR 27 JUL 94-7 74-0 53.6 075B 1NTERCOSMOS 16 9055 USSR 27 JUL 94-2 50.5 50.9	CZAE		9269	USSR	- 1	698.4	62.9	38726	899		
0756 9054 USSR 27 JUL 95.0 74.0 550 0750 9056 USSR 27 JUL 94.6 74.0 531 0750 9267 USSR 27 JUL 97.1 74.0 735 0756 9268 USSR 27 JUL 94.7 74.0 735 0756 9718 USSR 27 JUL 94.7 74.1 533 0754 9718 USSR 27 JUL 94.7 74.1 534 0754 9055 USSR 27 JUL 94.4 50.5 518 0758 USSR 27 JUL 94.4 50.5 50.5 509	075A	5 84	9053	USSR		95.1	74.0	549	508		
0750 0750 0750 0756 0757 0757 0757 0758 0754 0754 0758 0758 0758 10758 0758 10758 0758 107			9054	USSR		95.0	74.0	550	498		
075E 926B USSR 27 JUL 97.1 74.0 735 075E 9665 USSR 27 JUL 94.7 73.9 533 075G 9718 USSR 27 JUL 94.7 74.1 532 075A INTERCOSMOS 16 9055 USSR 27 JUL 94.4 50.5 518 076B 1NTERCOSMOS 16 9055 USSR 27 JUL 94.2 50.5 509			2300	1550		0.96	73.0	732	4 9 9		
075° 9665 USSR 27 JUL 94.7 73.9 533 0756 USSR 27 JUL 94.7 74.1 532 0759 0.0554 0.058 27 JUL 94.8 74.0 536 0768 INTERCOSMOS 16 9055 USSR 27 JUL 94.2 50.5 509 0768			9268	USSR		97.1	74.0	735	209		
075G 9718 USSR 27 JUL 94.7 74.1 53.2 075H 076A INTERCOSMOS 16 9055 USSR 27 JUL 94.4 50.5 518 076B 075B 055C USSR 27 JUL 94.2 50.5 509			9665	USSR		7.46	73.9	533	481		
075H 1NTERCOSMOS 16 9055 USSR 27 JUL 94.2 50.5 518			9718	USSR		7. 46	74.1	532	478		
0768 INTERCUSATION 9056 USSR 27 JUL 94.2 50.5 509	075H	1.	9789	USSB		00.00	20.00	919	461		
	4070	-	9000	2000		94.2	20.00	200	458		

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1975 LAUNCHE	GNATION	CATALOS NJMBER	SOURCE	LAUNCH	MINUTES	NATION	APOGEE KM.	KM.	FREG . (MHZ)	NOTES
211	S (CONT.D)									
	NOAA S	1506	Sn	29 JUL	116.2		1522		137.500.137.620,	900
976 0778 975 078A	COS MOS 846	9063	USSR	29 JUL 29 JUL	100	102.0	1522	1507		
		9270	ussu ns	1		ELEMENTS	NOT MAIN			
	DZWU SUNSUU	9271	USSR		6	70.9	783	_		
		9383	USSR		66	70.0	969			
	COSMOS 850	9387	USSR		5 6	81.1	639			
		9300	USSR				664			
		0 305	280	1			1788			
		9400	USSR				345			
	TIP 3	9403	Sn				866			
		4046	SO	SEP			698			
		9410	0S	1 SEP			762			
		9415	SO	11 SEP			848			
		0420	8	SFP			848			
		94 74	SO	11 SEP			849			
		9483	SD	11 SEP			60 a			
		9518	000	11 SEP			848			
	RADUGA	9416	USSR	11 SEP			NOT MAI	_		
		9440	USSR	11 SEP			35618	- 1		
	COSMOS 858	9443	USSR				812			
		9444	USSR	- 1	Ī		813			
	MARISALS	0542	000				35895	,		
	METEOR	9481	USSR				168			
		9482	USSR				923			
	011	9478	115.50	- 1			1002	- 1		
	COSMOS 862	9495	USSR				39651			
		9056	USSR				39258			
	EKRAN	9503	USSR				35AAO			
		9540	USSR				35157			
	COSMOS 864	6356	USSR				1009			
		9510	2880				966			
		9583	USSR	23 NOV			359			
		9584	USSR				437			
		9585	0550				275			
	SNOZ	9557	USSR		•		197754			
	COSMOS 868	9561	USSR		1		446			
	40S 87	9573	asso				540 040			
		9577	USSR	1			206			
9	MOLNIYA 2	9574	USSR				39746			
0		9575	USSR				9000			
0 4		95.69	2550				1465			
0 0		9589	USSR				1466			
976 118C	COSMOS 873	9590	USSR				1497			
1	٦.	1656	11558				1 466			
0 4		2666	8550	7 DFC			1540			

195 COS 605 877 O 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	100 100	100 100	NATI UNAL DESI GNATION	NAME	CAT ALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLI- NAT ION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREG . (MHZ)	NOTES
COSMOS 877 OSS 877 O	Colored State Colored Stat	1986 Consider a part Con	AUNCHE	(CCNT									
COS MOS BOX COS MOS BOX COS MOS CO	Color Colo	Colored Colo	118G	SWCS 87	9594	USSR		115.1	74.0	1466	1456		
COSMOS RE3 9510 0558 104.8 87.9 101.4 9558 101.4	Cost	100 100	20A	05 MOS 88	9598	USSR		96.4	65.8	621	555		
224 COSMOS RE3 9010 USSR 15 DEC 104.8 R 20 1014 050 050 050 050 050 050 050 050 050 05	Colores Colo	12.64 COS MOS RE3	200		9096	HSSN		96.4	65.8	622	555		
### COSMOS 665 90 90 90 90 90 90 90 90 90 90 90 90 90	25 COSMOS 665 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Colored Res	228 228	MOS BB	9613	USSR		104.8	82.9	1001	956		
Colores Colo	CCGMCS Rectangle CCGMCS	Colored Rep	7 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	MOS 88	9615	USSA		54.3	65.6	515	462		
Colored Ref	250 COSMOS 895 OF STATE OF STA	222	124B		9626	USSR		94.3	65.8	505	467		
126 126	COSMOS MAC	COSMUS 809 COS	125A		9 627	Sn		93.2	6.96	529	343		
Color Colo	12 12 12 12 12 13 13 13	125 A	125B	v	9628	assn		114.3	65.8	2202	559		
### ### ##############################	VACATION OF SET 19 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	March Marc	1	AQ		USSR			58				28*
ALINCHES SET 0667 USSR 26 DEC 732.4 62.6 40430 6537 ALINCHES ALI	24 COSMOS 687 0657 USSR 26 DEC 722.4 62.6 40.106 637 40.107 637 40.107 637 40.107 637 40.107 637 637 637 637 637 637 637 637 637 63	286 METER 2 9651 USSR 26 DEC 104.6 P2.0 1008 951 286 METER 2 9651 USSR 26 JAN 102.6 B1.2 904 950 287 COSMOS 897 9652 USSR 26 JAN 102.6 B1.2 904 950 288 METER 2 9651 USSR 26 JAN 102.6 B1.2 904 950 289 METER 2 9652 USSR 26 JAN 102.6 B1.2 904 950 280 JAN 102.6 B1.2 9051 950 280 JAN 102.6 B1.2 904 904 904 904 904 904 904 904 904 904		ALIA	CK	11558	- 1	2.00	62.0		208		
Name Colore Col	### COSMOS 897 9538 COSMOS 897 9538 COSMOS 897 0558 COSMOS 897	### COSMOS 699		000	90	USSR		732.4	62.8	4	637		
### METERN 2 9661 USSR 6 JAN 102:9 81:2 904 890 22 9662 USSR 6 JAN 102:8 81:2 904 890 24 0 CSWOS 890 9737 USSR 6 JAN 102:8 81:2 904 890 44 0 CSWOS 890 9737 USSR 20 JAN 105:1 82:9 1019 982 45 0 CSWOS 891 9737 USSR 20 JAN 105:1 82:9 1019 982 46 0 CSWOS 891 9737 USSR 20 JAN 105:1 82:9 1019 982 47 0 CSWOS 891 9737 USSR 20 JAN 105:1 82:9 1019 982 48 0 CSWOS 891 9737 USSR 20 JAN 105:1 82:9 1019 982 48 0 CSWOS 891 9737 USSR 20 JAN 105:1 82:9 1019 982 49 0 CSWOS 891 9737 USSR 20 JAN 105:1 82:9 1019 982 40 0 CSWOS 892 9737 USSR 11 FEB 718:1 62:8 3988 464 40 0 CSWOS 893 9737 USSR 11 FEB 718:1 62:8 3988 464 40 0 CSWOS 894 9737 USSR 11 FEB 718:1 62:8 3988 464 40 0 CSWOS 894 9737 USSR 11 FEB 718:1 62:8 3988 498 40 0 CSWOS 894 9737 USSR 11 FEB 718:1 62:8 3988 70 40 0 CSWOS 894 0 USSR 11 FEB 718:1 62:8 3988 70 40 0 CSWOS 894 0 USSR 11 FEB 718:1 62:8 3988 70 40 0 CSWOS 894 0 USSR 11 FEB 718:1 62:8 3988 70 40 0 CSWOS 894 0 USSR 11 FEB 718:1 62:8 3988 70 40 0 CSWOS 894 0 USSR 11 FEB 104:9 62:8 3988 70 40 0 CSWOS 894 0 USSR 20 FEB 104:9 65:7 3167 794 40 0 CSWOS 894 0 USSR 20 FEB 104:9 65:7 3167 794 40 0 CSWOS 894 0 USSR 20 FEB 104:9 65:7 3167 794 40 0 CSWOS 895 0 USSR 20 FEB 104:9 65:7 3167 794 40 0 CSWOS 895 0 USSR 20 FEB 104:9 65:7 3167 50:9 3167 794 40 0 CSWOS 895 0 USSR 20 FEB 104:9 65:7 3167 50:9 3167 50	### WETERN 2 9661 USSR 6 JAN 102:9 81:2 904 890 22	METERS 2 9661 USSR 6 JAN 102-9 961-2 904 899 ALTERIA COSMOS 899 9651 USSR 6 JAN 102-9 91-2 904 899 ALTERIA COSMOS 899 9651 USSR 20 JAN 102-9 91-2 904 904 904 904 904 904 904 904 904 904		USMUS 88	00	USSR		104.6	82.9	00	950		
### WETEOR 2 9661 USSR 6 JAN 102-9 81-2 904 880 22	## WETER 2 9661 USSR 6 JAN 102-9 6112 901 890 ### COSMOS 890 9737 USSR 20 JAN 102-9 812-2 901 890 ### ANTO 111-8 9738 USSR 20 JAN 102-9 82-9 1019 982 ### ANTO 111-8 9738 USSR 20 JAN 102-9 82-9 1009 982 ### ANTO 111-8 9738 USSR 20 JAN 102-9 82-9 1009 982 ### ANTO 111-8 9738 USSR 20 JAN 102-9 82-9 1009 982 ### ANTO 111-8 9738 USSR 20 JAN 102-9 82-9 1009 982 ### ANTO 111-8 9739 USSR 20 JAN 102-9 82-9 1009 982 ### ANTO 111-8 9739 USSR 10 JAN 102-9 92-9 1009 982 ### ANTO 111-8 9739 USSR 10 JAN 102-9 92-9 1009 982 ### ANTO 111-8 9739 USSR 10 JAN 102-9 92-9 1009 982 ### ANTO 111-8 9739 USSR 10 JAN 102-9 92-9 1009 982 ### ANTO 111-8 9739 USSR 10 JAN 102-9 92-9 1009 982 ### ANTO 111-8 9739 USSR 10 JAN 102-9 92-9 1009 982 ### ANTO 111-8 9739 USSR 102-9 92-9 1009 982 ### ANTO 111-8 9739 USSR 102-9 92-9 1009 982 ### ANTO 111-8 9739 USSR 102-9 92-9 1009 982 ### ANTO 111-8 9739 USSR 102-9 92-9 1009 982 ### ANTO 111-8 9739 USSR 102-9 92-9 1009 972 ### ANTO 111-8 9739 USSR 102-9 92-9 1009 972 ### ANTO 111-8 9739 USSR 202-9 92-9 1009 972 ### ANTO 111-8 9739 USSR 202-9 92-9 1009 972 ### ANTO 111-8 9739 USSR 202-9 92-9 1009 972 ### ANTO 111-8 9739 USSR 202-9 92-9 1009 972 ### ANTO 111-8 9739 USSR 202-9 92-9 1009 972 ### ANTO 111-8 9739 USSR 202-9 92-9 1009 972 ### ANTO 111-8 9739 USSR 202-9 92-9 1009 972 ### ANTO 111-8 9739 USSR 202-9 92-9 1009 972 ### ANTO 111-8 9739 USSR 202-9 92-9 1009 972 ### ANTO 111-8 9739 USSR 202-9 92-9 1009 972 ### ANTO 111-8 9739 USSR 202-9 92-9 1009 972 ### ANTO 111-8 972-9 9	Cosmos Boy Cos											
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Cosmos 890 9737 USSR 20 Jan 1028 812 902 890	25	Columb C	0028		9662	USSR		102.9	2018	808	890		
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March Marc	MATCHILL	Second	C4A	08 MOS 89	9737	USSR		105.1	82.9	1019	982		
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12C 9843 JAPAN 19 FEB 134.2 65.7 3816 794 13A COSMOS 894 9844 JAPAN 19 FEB 104.8 65.0 1241 732 13A COSMOS 894 9846 USSR 21 FEB 104.8 82.9 1003 970 14A KIKU 2 9852 JAPAN 23 FEB 1390.8 0.5 35756 34035 136.112.1705.000 15A COSMOS 895 USSR 26 FEB 97.1 81.2 687 562	12C 9843 JAPAN 19 FEB 134.2 65.7 3816 794 13D 0844 JAPAN 19 FEB 104.8 65.0 1241 732 13A KIKU 2 9854 JAPAN 22 FEB 104.8 82.9 1003 97.0 13B COSMOS 895 9854 USSR 26 FEB 97.1 81.2 687 562 15B	120 9843 JAPAN 19 FEB 134.2 65.7 3816 794 120 9844 JAPAN 19 FEB 104.8 65.0 1241 732 120 9846 JAPAN 19 FEB 104.8 65.0 1012 971 138 GSR 21 FEB 104.8 82.9 1013 971 138 JAPAN 23 FEB 104.8 82.9 1013 971 158 COSMCS 895 9854 USSR 26 FEB 97.2 81.2 687 562	12A	AN SE I	9841	JAPAN	- 1	95.8	65.4	792	328		
136 COSMOS 894 9846 USSR 21 FEB 104.9 82.9 1012 971 138 KIKU 2 9852 JAPAN 23 FEB 1390.8 0.5 35/36 34035 136.112.1705.000 14A KIKU 2 9854 USSR 26 FEB 97.2 81.2 687 562	136 COSMOS 894 9846 USSR 21 FEB 104.9 82.9 1012 971 138 COSMOS 895 9853 USSR 26 FEB 97.2 81.2 687 562 158 COSMOS 895 9854 USSR 26 FEB 97.2 81.2 687 562	136 COSMOS 894 9846 USSR 21 FEB 104.9 82.9 1012 971 138 COSMOS 895 9854 USSR 21 FEB 104.8 82.9 1003 970 139 A KIKU 2 9852 JAPAN 23 FEB 1390.8 0.5 634 609 15B COSMOS 895 9854 USSR 26 FEB 97.2 81.2 687 562	C12C		9843	NAGAL		134.2	65.7	3816	794		
13B KIKU 2 9848 USSR 21 FEB 104+8 82+9 1003 970 136-112-1705-000 14A KIKU 2 9852 JAPAN 23 FEB 1390+8 0.5 35756 34035 136-112-1705-000 15A COSMOS 895 9854 USSR 26 FEB 97+2 81+2 687 562	138 KIKU 2 98448 USSR 21 FEB 1104+8 82-9 1003 970 136-112-1705-000 154 COSMCS 895 9853 USSR 26 FEB 97.2 81.2 687 562 136-112-1705-000 15B COSMCS 895 9854 USSR 26 FEB 97.2 81.2 687 562	138 KIKU 2 98448 JUSSR 21 FEB 1104+8 82+9 1003 94035 136-112-1705-000 154 COSMCS 895 9853 USSR 26 FEB 97.2 81.2 687 562 136-112-1705-000 15B COSMCS 895 9854 USSR 26 FEB 97.2 81.2 687 562	13A	8	9846	USSR	- 1	104.9	82.9	1012	971		
158 COSMOS 895 9853 USSR 26 FEB 97.1 81.2 634 609	15B COSMOS 895 9853 USSR 26 FEB 97.1 81.2 634 609	15B COSMOS 895 9853 USSR 26 FEB 97.1 81.2 634 609	138	0	9848	USSR		1390-8	82.9	35756	34035	7	
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014AM		2533	Sn		NYS	
014CP		2200	S.		24.	
01400		2503	0 C	TOO ST	23 FEB 77	
0560		8080	OS O	1	NAC	
056AK-	. 056CF	9739-9783	SO		ZYS	
08160	- 1	3796	USSB		N	
50160		5891	USSR	200	746	
1 CZ 60		5966	USSR		4	
08233		25.20	SO:			
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1035		0250	2000			
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9860		1210	60			
0587		6697		- 1		
C286B		9208	60:		1	
9970		200	3000			
1010		1967	50:	- 1		
1030		1748	2000			
103E		7750	USSR			
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1000		8500	SO		9 FEB	
1000		8626	dssn	- 1	MAL	
1001		8627	USSR		3 FEB	
1025		8636	USSR		SAN	
102AA		8644	USSR		S JAN	
102AK		8655	USSR			
102AS		8715	USSR		9 FEB	
10241		8717	USSR		3 FEB	
102AX		8720	USSR		FE8	
10286		8729	USSR	- 1	MAL 8	
10281		8733	USSR		B JAN	
102BM		8734	USSR		Z	
0830		9467	USSR		6 FEB	
0848		9388	USSR		ZYC +	
1040		9631	USSR		FEB	
1000		9525	USSR		FEB	
100		95.56	assn		FEB	
911		055A	USSB	- 1	FEB	
1128		9558	USSR		ZAS	
200		9559	USSR		4	
130		9869	USSR	- 1	NAS	-
1150		9578	USSR		FFB	
110		9580	USSR		FEB	
116F		9581	USSR	2 DEC		
1 7 4		9587	PPC		245	

COSMOS 888 0 9022	123C 123E 123E 123F 125C		CATALOG				
COS		3.4	NUMBER	SOURCE	LAUNCH	DECAY	NOTES
Colored Colo			9624	USSR	1	Z Z	
12 12 12 12 12 12 12 12			9646	USSR		NAC	
11270 11270			9630	s s		FEB	
CONTRACTOR AGE			9645	USSR		N E	
COURT COUR			9641	8550	- 1	FEB	
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COSTA			9732	asso.		Z Z	
COORD SOVUZ 24 0909 0735 050 JAN 1 FEB 77 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			9733	3550 1558	- 1	ZV	
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10000	6078		8086	SO		FEB	*62
00000	COSA SUTUE Z	4	5050	USSR	- 1	FEB	
00094 COSMOS 892 9813 USSR 99 FEB 10094 COSMOS 892 9813 USSR 99 FEB 10095 COSMOS 892 9814 USSR 99 FEB 10095 COSMOS 8932 USSR 99 FEB 10095 COSMOS 89 FEB 1009	0080		9086	USSR		FEB	
1000000 1000000 10000000 1000000000000	SOM COS MOS	892	9812	USSR			
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0.058 9 9 FEB 23 TEB 24 TEB 25			9847	USSR		FEB	
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	DECAMED CAN BE FOUND IN THE DECAMED OBJECTS LIST IN THE DECEMBER 31 END-
	OF-THE-YEAR SUMMARY SATELLITE SITUATION REFURT. 98 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1963 014A.
	TH
	YEAR SUMMARY SATELLITE SITUATION REPORT. 13 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1963 047A. THE OBJECT OF THIS SERIES THAT HAS DECAYED CAN BE FOUND IN THE DECAYED
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	146 DBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1965 0204.
	1903 02/05 AND 1903 02/04 DESCRIPTION THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.
1	TRANSMITTING CN CCMMAND ONLY
- 1	4674 UBJECTS HAVE HEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1965 UBZA- OBJECTS OF THIS SERIES THAT MAVE DECAMED CAN BE FOUND IN THE DECAMED
	OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUA- TION REPORT.
	DEBRIS DISCOVERED IN ORBIT WHICH HAS NOT BEEN IDENTIFIED WITH ANY
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	OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUA-
1	21 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1967 001A. OR HETS OF THIS SEDIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED
	160
	0
	ED
	114 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1968 0974. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED
	40
	37 ORJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1969 0294.
	11 (0)
	A MANNED SPACECRAFT WHICH SUCCESSFULLY LANDED ON THE MOON AND RETURNED
	240 DBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1969 0824.
	*
	DECAYED CAN BE FOUND IN THE DECAYED CBUECTS LIST IN THE DECEMBER 31 END-
	025A
	AND 1970 0258. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SAT-
	0
	ORIGINAL SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED
1 .	12
	S
	DEBT SECURITY OF THE WHICH HAS NOT BEEN IDENTIFIED WITH ANY
	62 OBJECTS HAVE REEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1971 015A.
	OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-DE-THE-YEAR SUMMARY SATELLITE SITUA-
	48 30
- 1	ZIZ CUSTCIS HAVE BEEN IDEN INTERED CAN BE FOUND IN THE DECAYED.
	OBJECTS IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUA-

ORIGINAL PAGE 18 OF POOR QUALITY

CTS HAVE BEEN TOENTIFIED AS HAVING BEEN LAUNCHED WITH 1973 0864. CTS HAVE BEEN TOENTIFIED AS HAVING BEEN LAUNCHED WITH 1974 0894. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1974 0894. TE HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1974 0894. TE HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1975 0944. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1975 0944. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1975 0944. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1975 1024. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1975 1024. CTS HAVE PEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1975 1024. CTS HAVE PEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1975 1024. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1975 1024. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1876 1264. CT	CITS HAVE BEEN TOENTIFIED AS HAVING BEEN LAUNCHED WITH 1973 C86A- OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND HATH 1974 089A- ONT THE DECEMBER 31 EMD-OF-THE-YEAR SUMMARY SATELLITE SITUA- CITS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1974 103A- OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OF THIS SERIES THAT HAVE DECAYED CAN BE COUND IN THE DECAYED OF THIS SERIES THAT HAVE DECAYED CAN BE COUND IN THE SERIES THAT HAVE BEEN THAT HAV	TOENTIFIED AS HAVING BEEN LAUNCHED WITH 197 ES THAT HAVE DECAYED CAN BE FOUND IN THE DECA ES THAT HAVE DECAYED CAN BE FOUND WITH 1974 IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1974 IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1975 ES THAT HAVE DECAYED CAN BE FOUND IN THE DECA DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1975 ES THAT HAVE DECAYED CAN BE FOUND IN THE DECA DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 ES THAT HAVE DECAYED CAN BE FOUND IN THE DECA DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE DENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 ES THAT HAVE DECAYED CAN BE FOUND IN THE DECA DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE DENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 ES THAT HAVE DECAYED CAN BE FOUND IN THE DECA DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE RE-ENTRY AND RECOVERY OF MANNED SPACE VEHICL SIGNED.	100	FOUTURES CONT. PRESELENDOCENTRIC PARAMETERS (REFERENCED
TEST HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1974 1034. 11.5 HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1974 1034. 12. SHAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1975 1044. 12. THAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1975 0044. 12. THAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1975 1024. 13. THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION THE DECAYED CAN BE FOUND IN THE DECAYED CAN BE LAUNCHED WITH 1976 1264. 11. THE THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED CAN BE FOUND IN THE DECAYED CAN BE LAUNCHED WITH 1976 1264. 11. THE THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED CAN BE SUMMARY SATELLITE SITUATION. 11. THE THIS SERIES THAT HAVE DECAYED CAN BE SUMMARY SATELLITE SITUATION. 12. THE THIS SERIES THAT HAVE DECAYED CAN BE SUMMARY SATELLITE. SITUATION. 13. THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION. 14. THE THIS SERIES THAT HAVE DECAYED CAN BE COVERY OF MANNED SPACE VEHICLE. 15. THE THIS SERIES THAT HAVE BEEN LAUNCHED WITH 1976 1264. 16. NUMBER ASSIGNED.	THE SERIES THAT HAVE BEEN LAUNCHED WITH 1974 0894, and 1974 0895. THAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1974 1034. THAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1974 1034. LIST HIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED CAN BE SURMARY SATELLITE SITUATION OF THIS SERIES THAT HAVE REEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CIS HAVE REEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CIS HAVE REEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CIS HAVE REEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CIS HAVE REEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CIS HAVE REEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CIS HAVE REEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CIS HAVE REEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CIS HAVE REEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CIS HAVE REEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CIS HAVE REEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CIS HAVE REEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CIS HAVE REEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CIS HAVE REEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CIS HAVE REEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CIS HAVE REEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 1264. CIS HAVE REEN IDENTIFIED AS HAVING BE COUNCHED WITH 1976 1264. CIS	PORT. ECTS. HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1974 0034. ECTS. HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1974 1034. COF THIS SERIES THAT HAVE DECAMED CAN BE FOUND IN THE DECAMED COF THIS SERIES THAT HAVE BEEN ALL HAD CAN BE FOUND IN THE DECAMED CAN BE FOUND IN THE DECAMED CAN BE FOUND IN THE FOUND IN THE FOUND IN THE FOUND IN TH	ECTS	EGTS HAVE BEEN INJ. OF THIS SERIES THAT HAVE DECAPED CAN BE FOUND IN THE DECAPED OF THIS SERIES THAT HAVE DECAPED CAN BE FOUND IN THE DECAPED OF THE SERIES THAT HAVE DECAPED CAN BE FOUND IN THE DECAPED OF THE SERIES THAT HAVE DECAPED CAN BE FOUND IN THE DECAPED OF THE SERIES THAT HAVE DECAPED CAN BE FOUND IN THE DECAPED.
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